HCD-MD333

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.1 2001. 06

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model



HCD-MD333 is the amplifier, CD, MD and tuner section in DHC-MD333.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

CD SECTION	Model Name Using Similar Mechanism	NEW
	Mechanism Type	CDM13C-5BD19
	Base Unit Type	BU-5BD19
	Optical Pick-up Type	KSS-213B/K-N
MD SECTION	Model Name Using Similar Mechanism	NEW
	Mechanism Type	MDM-3J
	Optical Pick-up Type	KSM-260A-JIN

SPECIFICATIONS

Amplifier section

AUDIO POWER SPECIFICATIONS:
(U.S.A. and Canadian models only)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
with 6 ohm loads both channels driven, from 70 - 20,000 Hz; rates 20 watts per channel minimum RMS power, with no more than 0.9% total harmonic distortion from 250 milliwatts to rated output.

Continuous RMS power output
25 + 25 watts (6 ohms at 1 kHz, 10% THD, 120V)(Reference)

European model:
DIN power output (Rated)
25 + 25 watts (6 ohms at 1 kHz, DIN, 230V)
Continuous RMS power output (Reference)
30 + 30 watts (6 ohms at 1 kHz, 10% THD, 230V)
Music power output (Reference)
50 + 50 watts

Other models:
DIN power output (Rated)
20 + 20 watts (6 ohms at 1 kHz, DIN, 240V)
18 + 18 watts (6 ohms at 1 kHz, DIN, 220V)
Continuous RMS power output (Reference)
25 + 25 watts (6 ohms at 1 kHz, 10% THD, 240V)
23 + 23 watts (6 ohms at 1 kHz, 10% THD, 220V)
Peak music power output 400 watts

Inputs TAPE IN (phono jacks): voltage 250 mV/125 mV, impedance 47 kilohms
Outputs TAPE OUT (phono jacks): voltage 250 mV impedance 1 kilohms
PHONES (Stereo minijack): accepts headphones of 8 ohms or more.
SPEAKER: accepts impedance of 6 to 16 ohms.

— Continued on next page —

COMPACT DISC DECK RECEIVER

9-922-935-12
2001F0200-1

Sony Corporation
Home Audio Company
Shinagawa Tec Service Manual Production Group

SONY®

CD player section

System	Compact disc and digital audio system
Laser	Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output	Max. 44.6 μW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Frequency response	2 Hz – 20 kHz

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output	Max. 44.6 μW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Recording time	74 minutes max. (using MDW-74)
Sampling frequency	44.1 kHz
Frequency response	5 Hz to 20 kHz

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 – 108.0 MHz (50 kHz step)
Aerial	FM lead aerial
Aerial terminals	75 ohms unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range	
North American model:	
AM:	530 – 1,710 kHz (with the interval set at 10 kHz) 531 – 1,710 kHz (with the interval set at 9 kHz)
European model:	
MW:	531 – 1,602 kHz (with the interval set at 9 kHz)
LW:	153 – 279 kHz (with the interval set at 3 kHz)
Other models:	
MW:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 – 1,710 kHz (with the interval set at 10 kHz)
SW:	5.95 – 17.90 MHz (with the interval set at 5 kHz)
Aerial	AM loop aerial External aerial terminals
Intermediate frequency	450kHz

General

Power requirements	
North American model:	120 V AC, 60 Hz
European model:	230 V AC, 50/60 Hz
Other models:	110 - 120 V or 220 - 240 V AC, 50/60 Hz
Power consumption	
North American model:	70 watts
Other models:	80 watts
Dimensions	
Amplifier/Tuner/MD/CD section:	Approx. 215 × 150 × 315 mm (8 1/4 × 6 × 12 1/2 in) (w/h/d) incl. projecting parts and controls
Mass	
Amplifier/Tuner/MD/CD section:	Approx. 5.5 kg (12 lb8oz.)
Supplied accessories	Remote RM-MD333 (1) AA (R6) batteries (2) AM loop aerial (1) FM lead aerial (1)

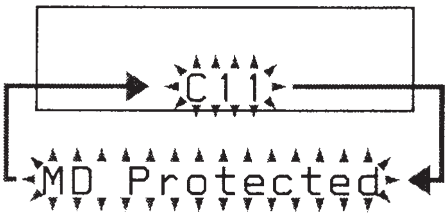
Design and specifications are subject to change without notice.

SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for users which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for users, refer to the following box in the instruction manual. For details on how to perform checks during servicing, refer to the following “Procedure for Using the Self-Diagnosis Function (Error History Display Mode)”.

Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11/MD Protected

The MD is protected against erasure.

→Remove the MD and slide the tab to close the slot (page 28).

C13/REC Error

Recording is not possible.

→Move the system to a stable place and start recording over from the beginning.

The MD is dirty or is scratched or the MD does not meet the standards.

→Change the MD with another one and start recording over from the beginning.

C13/Disc Error

The MD deck cannot read the disc information correctly.

→Eject the MD once, then insert it again.

C14/Disc Error

The MD deck cannot read the disc information correctly.

→Change the MD with another one.

→Erase all the recorded contents of the MD using the Erase function on page 39.

Procedure for Using the Self-Diagnosis Function (Error History Display Mode)

Note: Perform the self-diagnosis function in the “error history display mode” in the test mode. The following describes the least required steps. Be careful not to enter other modes by mistake. If other modes are set accidentally, press the [►II (CD)] button to exit that mode.

1. With the power off, press the [►II (MD)] button while pressing the [PLAY MODE] button.
2. Rotate the [VOLUME] knob until “ERR DP MODE” is displayed.
3. Pressing the [■ (CD)] button sets the error history mode and displays “total rec”.
4. Select the contents to be displayed or executed using the [VOLUME] knob.
5. Pressing the [⏏ (CD)] button displays or executes the contents selected.
6. Pressing the [⏏ (CD)] button another time returns to step 4.
7. Pressing the [►II (CD)] button displays “ERR DP MODE” and exits the error history mode.
8. To exit the test mode, press the [REPEAT] button. The unit sets into the STANDBY state, and the test mode ends.

ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS

Selecting the Test Mode

Display	Details of History
total rec	Displays the recording time in the form of “r□□□□□□h”. The displayed time is the total number of hours the laser is high power, which is about one-fourth of the actual recording time. The time is displayed in decimal digits between 0h to 65535h.
total play	Displays the playback time in the form of “p□□□□□□h”. The displayed time is the total actual play time. The paused time is not counted. The time is displayed in decimal digits between 0h to 65535h.
retry err	Displays the total number of retries during recording and retry errors during playback in the form of “r□□p□□”. “r” indicates the retries during recording while “p” indicates the retry errors during playback. The number of retries is displayed in hexadecimal digits between 00 to FF.
total err	Displays the total number of errors in the form of “total □□”. The number of errors is displayed in hexadecimal digits between 00 to FF.
err history	Displays the 10 latest errors in the form of “0□ E@@”. The □ indicates the history number. The smaller the number, the newer is the error. (00 is the latest error.) The @@ indicates the error code. Refer to the following table for details. Rotate the [VOLUME] knob to switch the error history.
er refresh?	Mode which erases all the error histories. The error history serves as a reference for when to replace the optical pick-up. Perform this procedure when the optical pick-up has been replaced in order to erase past error histories and not at other times. Press the [■ (CD)] button when “er refresh??” is displayed. The history will be erased and “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. • Check that the data has been erased. • Perform recording and playback, and check that the mechanism operates normally.

Table of Error Codes

Error Code	Details of Error	Error Code	Details of Error
E00	No error	E05	FOK has deviated
E01	Disc error. Cannot read PTOC	E06	Unfocused (Servo has deviated)
	(Disc is ejected out)	E07	Recording retry
E02	Disc error. UTOC error	E08	Recording retry error
	(Disc is not ejected out)	E09	Play retry error
E03	Loading error		(Access error)
E04	Cannot read address (Servo has deviated)	E0A	Playback retry error (C2 error)

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.



This caution label is located inside the unit.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

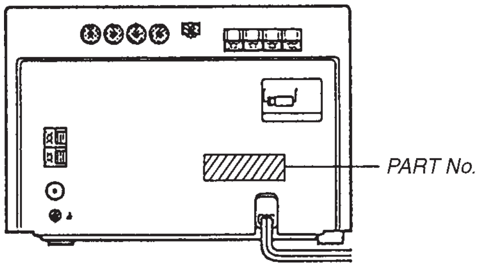
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

MODEL IDENTIFICATION
— BACK PANEL —



MODEL	PARTS No.
AEP, UK, EE model	4-993-849-5☐
MY, SP, JE, HK, AR, AUS model	4-993-849-6☐
US, CND model	4-993-849-7☐

- Abbreviation
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  SP : Singapore model
  MY : Malaysia model
  AR : Argentine model
  AUS : Australian model
  JE : Tourist model

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth Ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

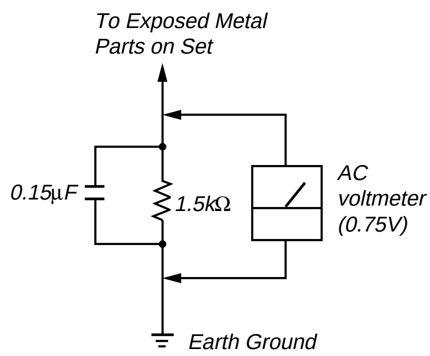


Fig. A. Using an AC voltmeter to check AC leakage.

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SECTION 1
SERVICING NOTE

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

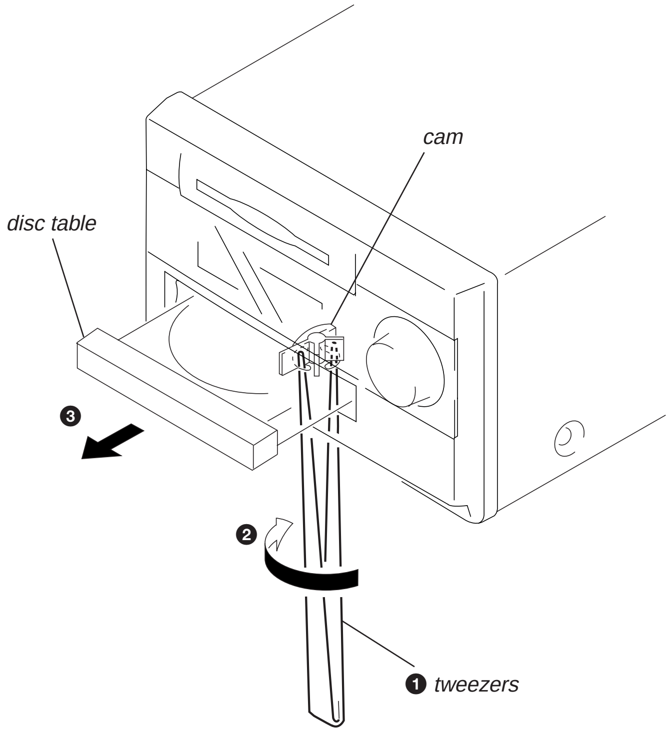
LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output three times.

Note:
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

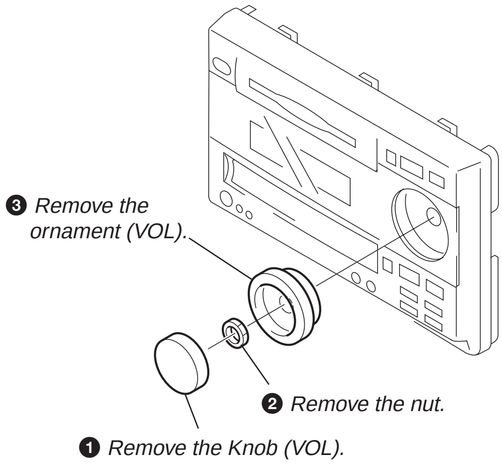
DISC TABLE GETTING OUT PROCEDURE ON THE POWER SUPPLY IS OFF

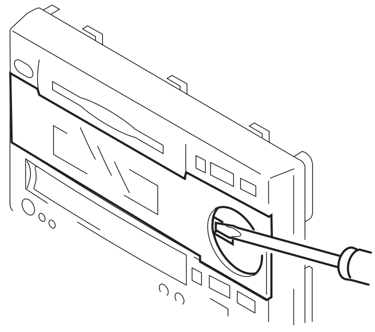
1. Insert the tweezers to a hole on bottom of the chassis as shown a figure, then tern fully it toward direction ❷.
2. Pull out the disc table.



PRECAUTIONS ON REMOVING WINDOW (FL) FROM FRONT PANEL

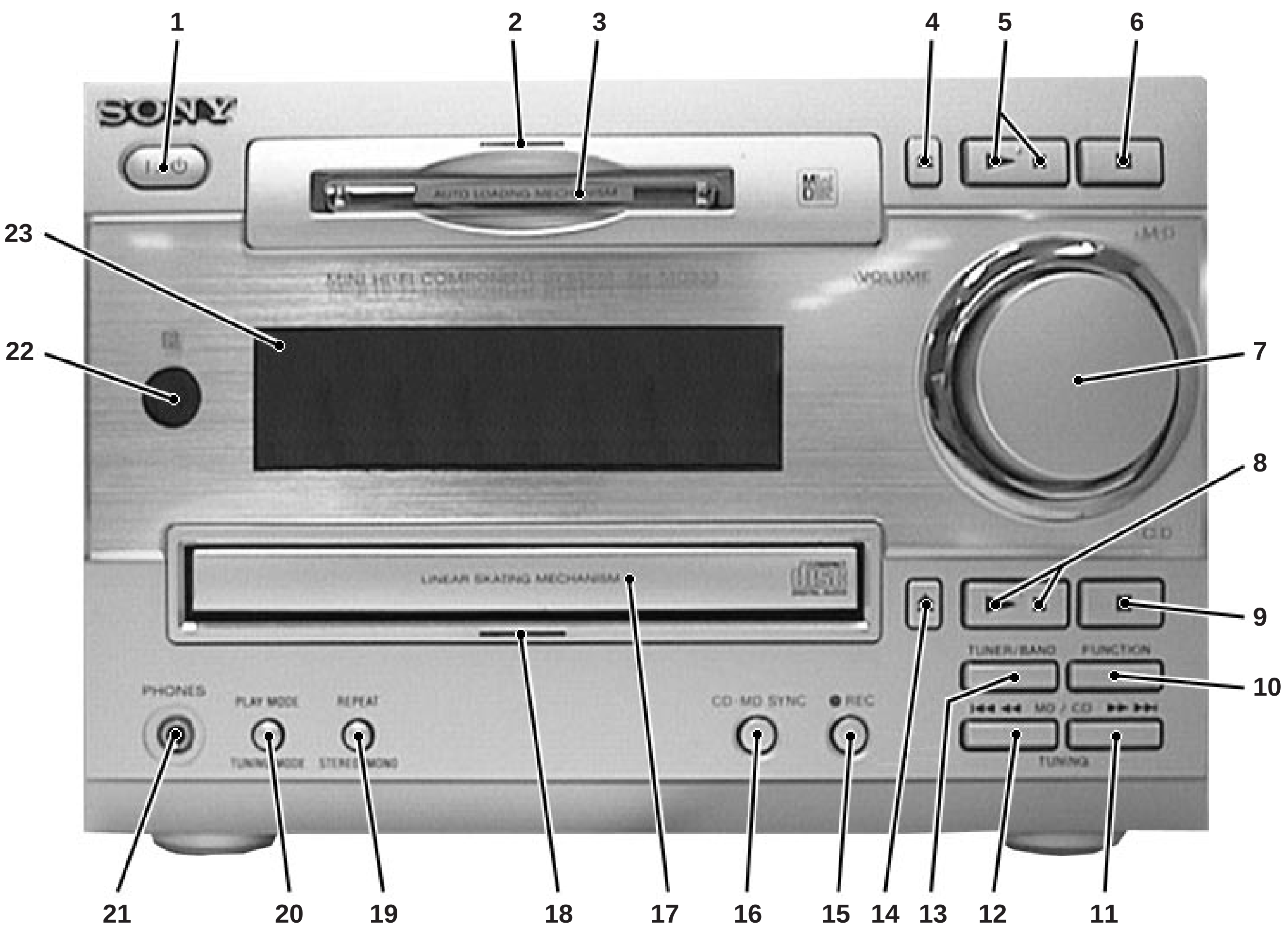
- Use the following procedure to prevent scratches on the front panel.





SECTION 2
GENERAL

Front Panel



Location of Parts and Controls

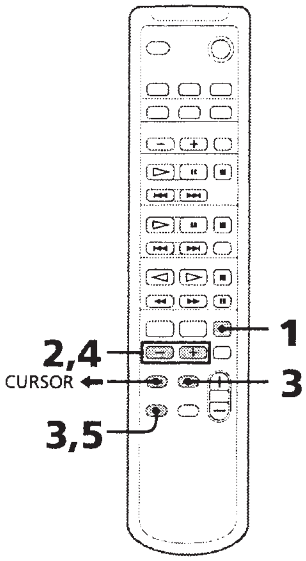
1 I/⏻ button
2 MD indicator
3 MD disc slot
4 ⏏ (MD) button
5 ►II (MD) button and indicator
6 ■ (MD) button
7 VOLUME knob
8 ►II (CD) button and indicator
9 ■ (CD) button
10 FUNCTION button
11 MD/CD ►► ►►I/TUNING + button
12 MD/CD I◄◄ ◄◄/TUNING – button
13 TUNER/BAND button
14 ⏏ (CD) button
15 ● REC button and indicator
16 CD-MD SYNC button
17 CD disc tray
18 CD indicator
19 REPEAT/STEREO/MONO button
20 PLAY MODE/TUNING MODE button
21 PHONES jack
22 Remote sensor
23 Display window

This section is extracted from instruction manual.

Step 2: Setting the time

You must set the time before you can use the timer functions.

The clock is on a 24-hour system for the European model, and a 12-hour system for other models.
The European model is used for illustration purpose.



1 Press CLOCK/TIMER SET while the power is off.
The clock appears and the hour indication flashes.

2 Press +/– to set the hour.



3 Press ENTER/YES or CURSOR →.
The minute indication flashes.



4 Press +/– to set the minute.

5 Press ENTER/YES.
The clock starts.

If you have made a mistake

Press CURSOR ← or → repeatedly so that the incorrect item flashes, then set it again.

To change the preset time

You can change the preset time while the power is on.

1 Press CLOCK/TIMER SET.
2 Press +/– repeatedly until "CLOCK SET?" appears.
3 Press ENTER/YES.
4 Repeat steps 2 through 5.

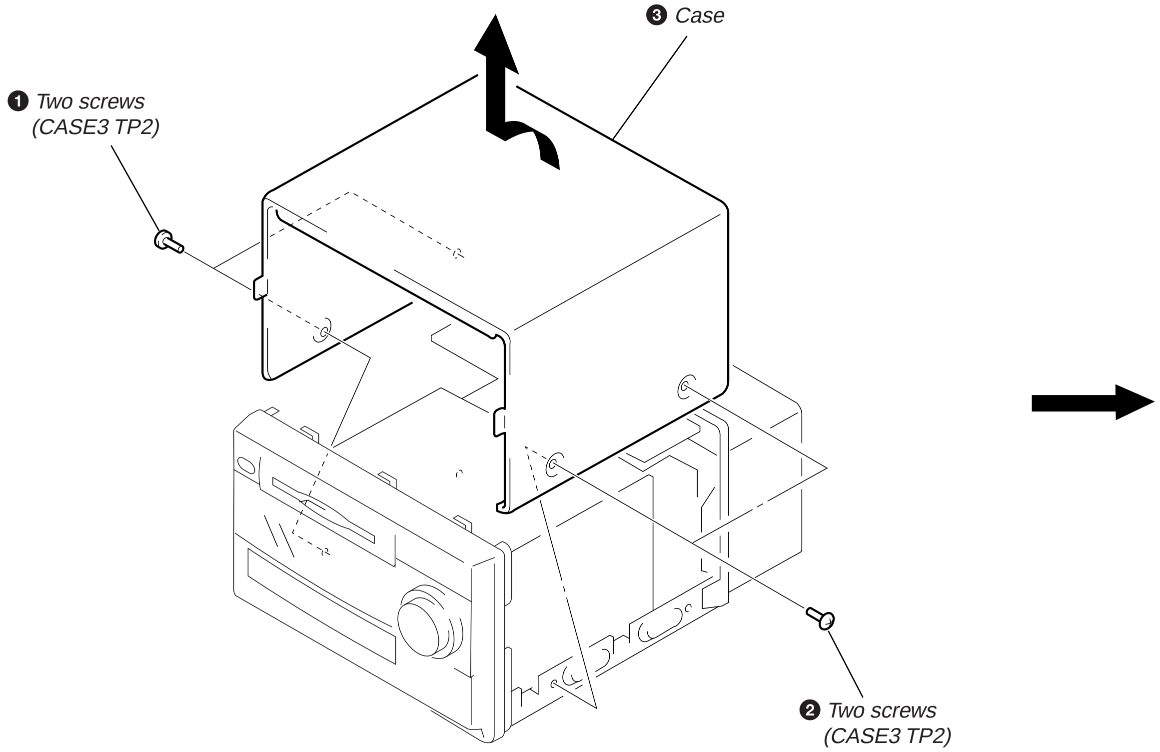
Tips

- The built-in clock shows the time in the display while the power is off.
- The upper dot flashes for the first half of a minute (0 to 29 seconds), and the lower dot flashes for the last half of a minute (30 to 59 seconds).

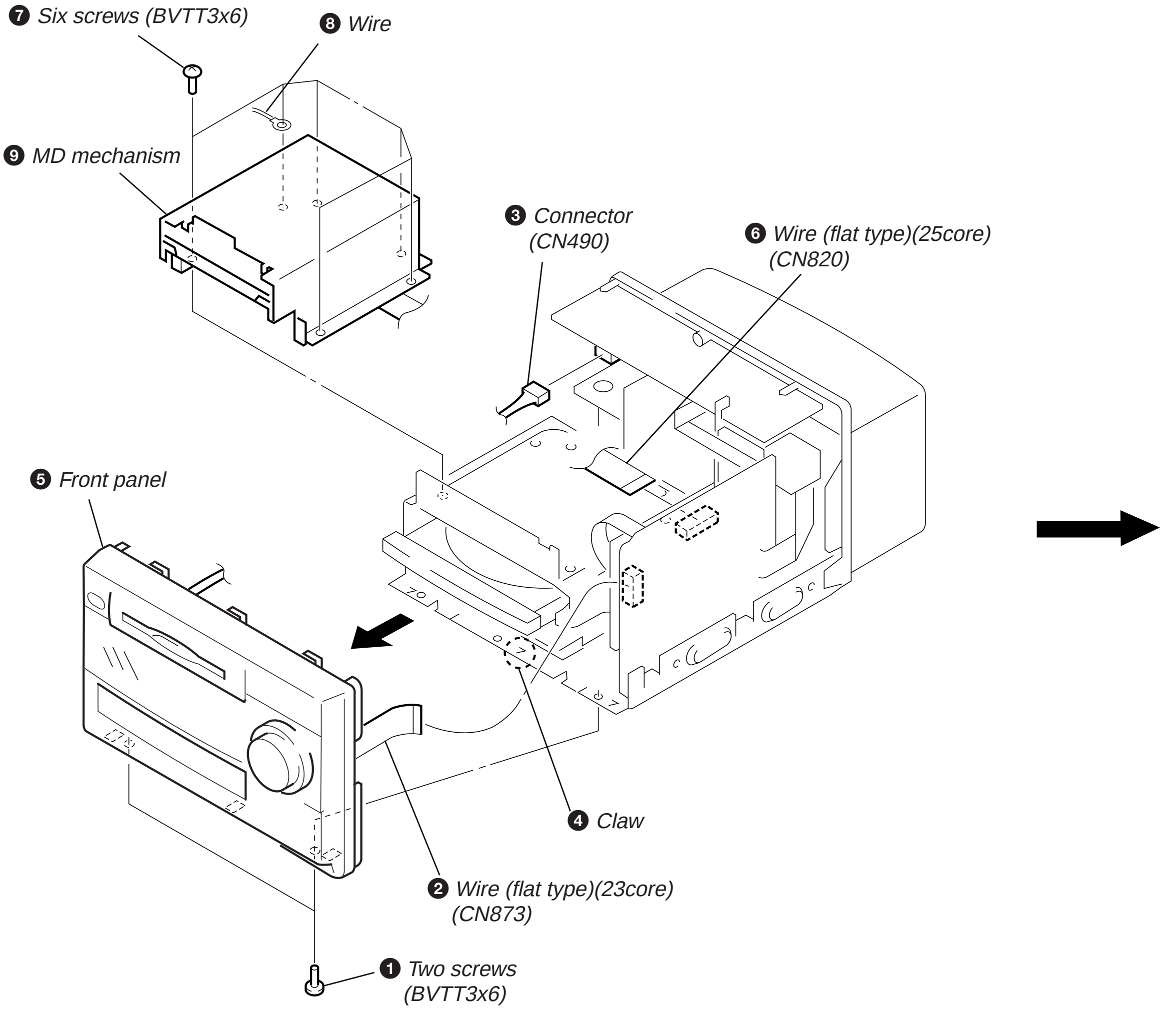
SECTION 3
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

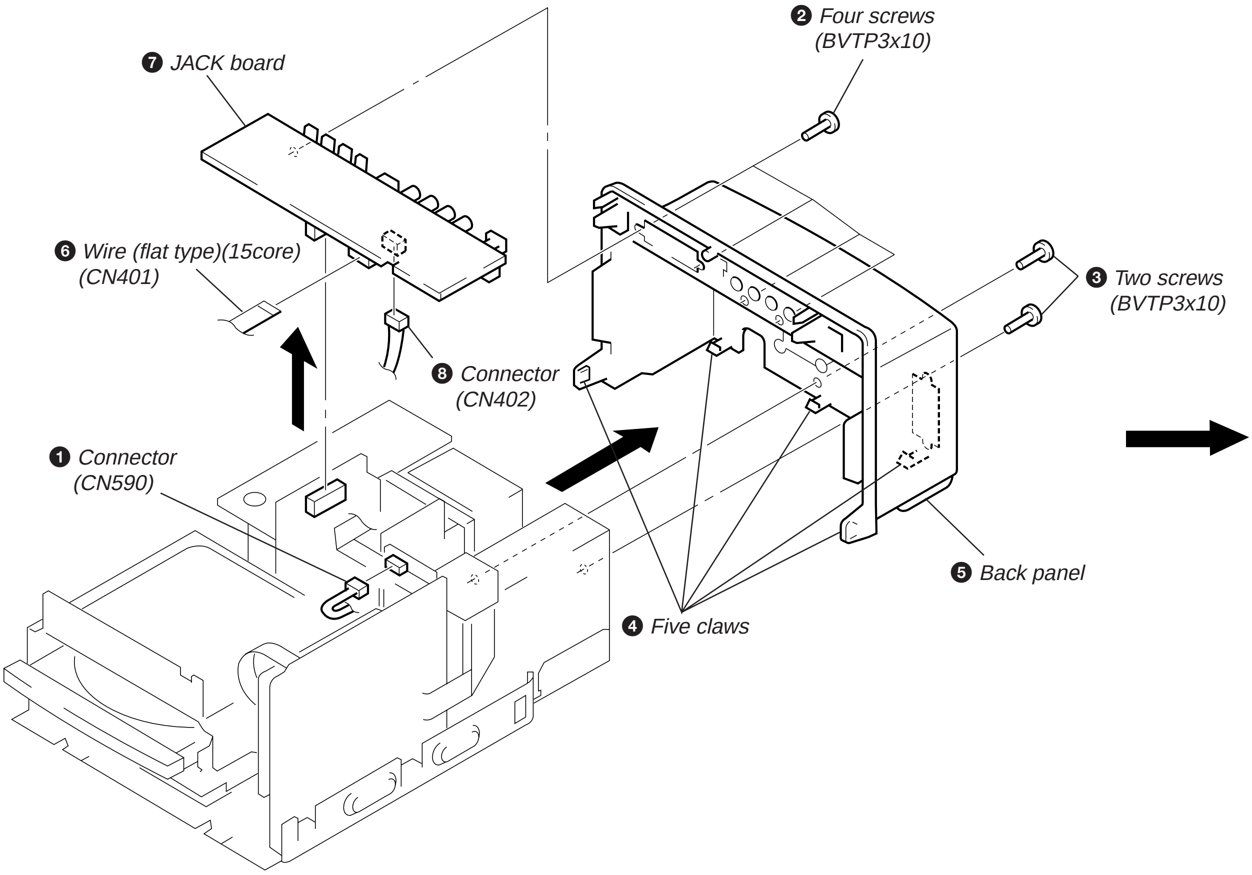
3-1. CASE



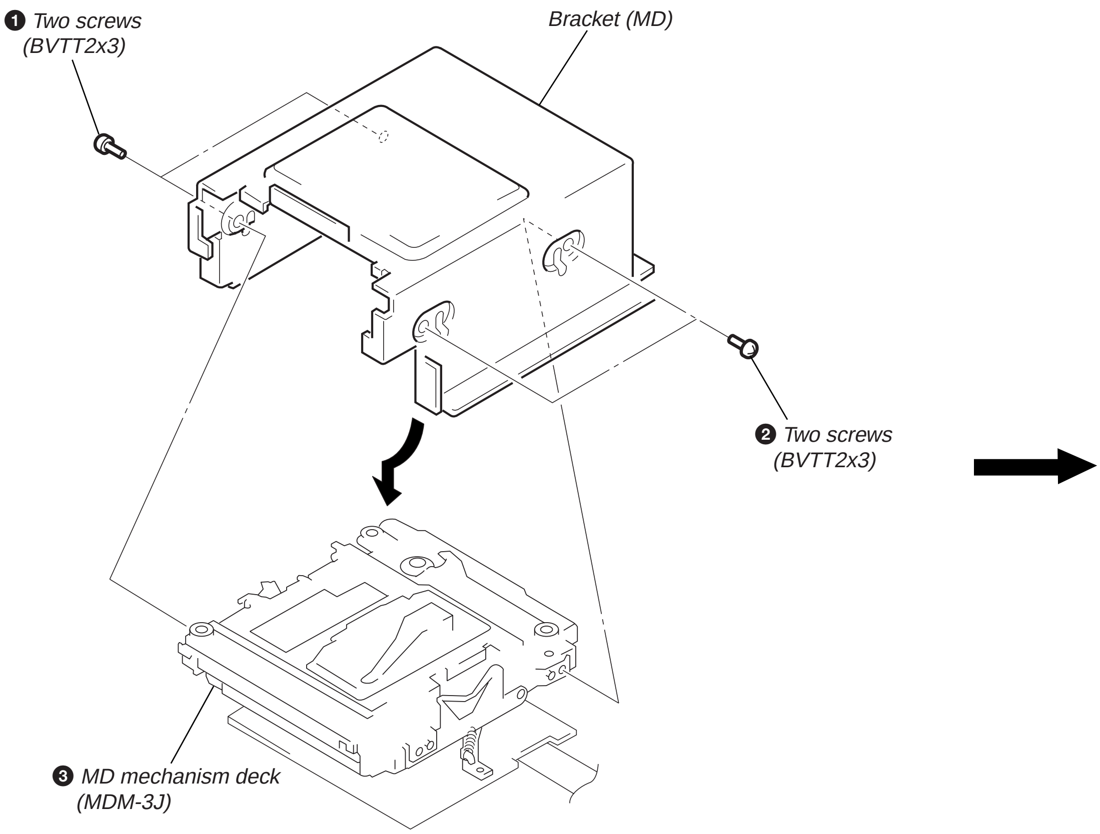
3-2. FRONT PANEL/MD MECHANISM DECK SECTION



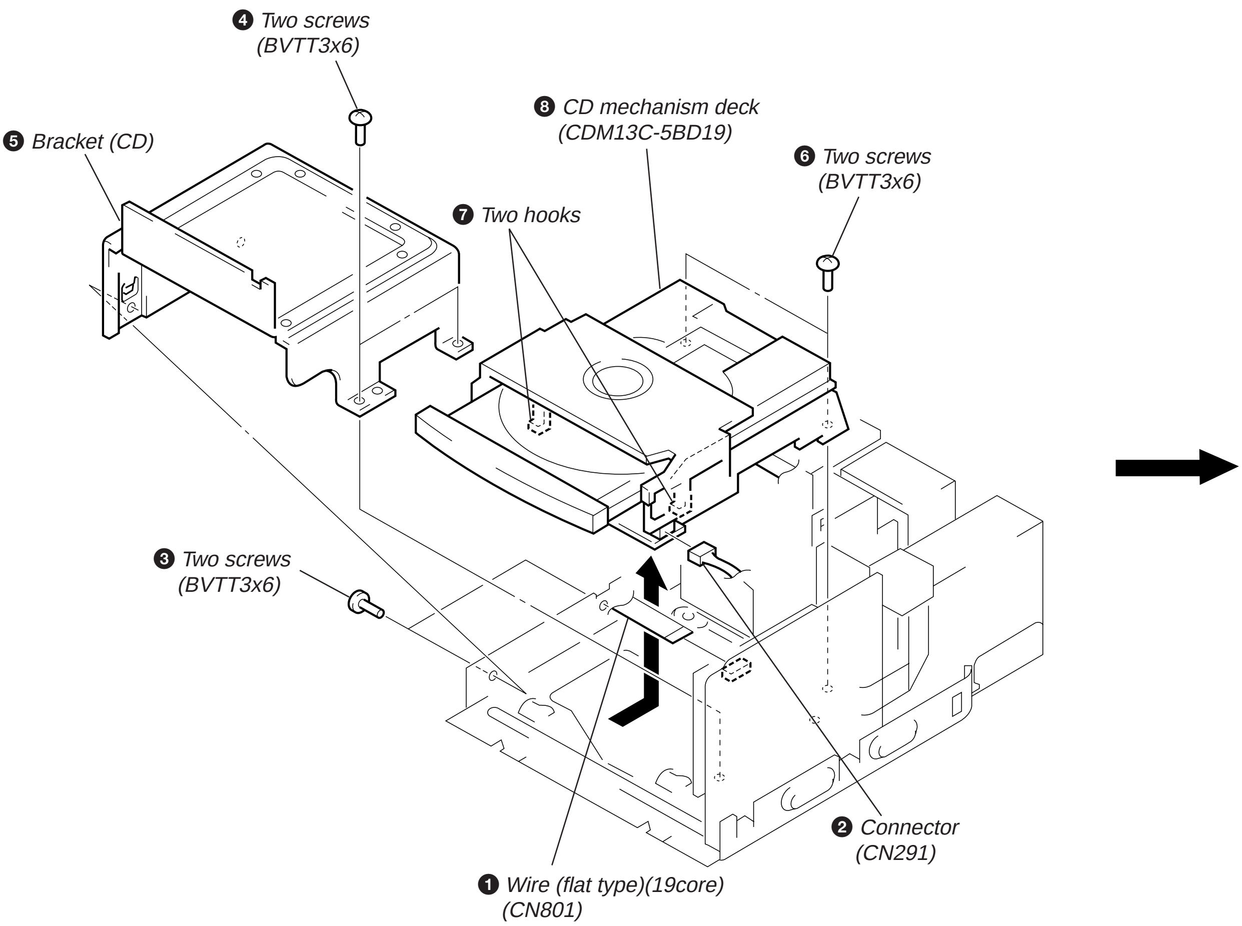
3-3. BACK PANEL, JACK BOARD



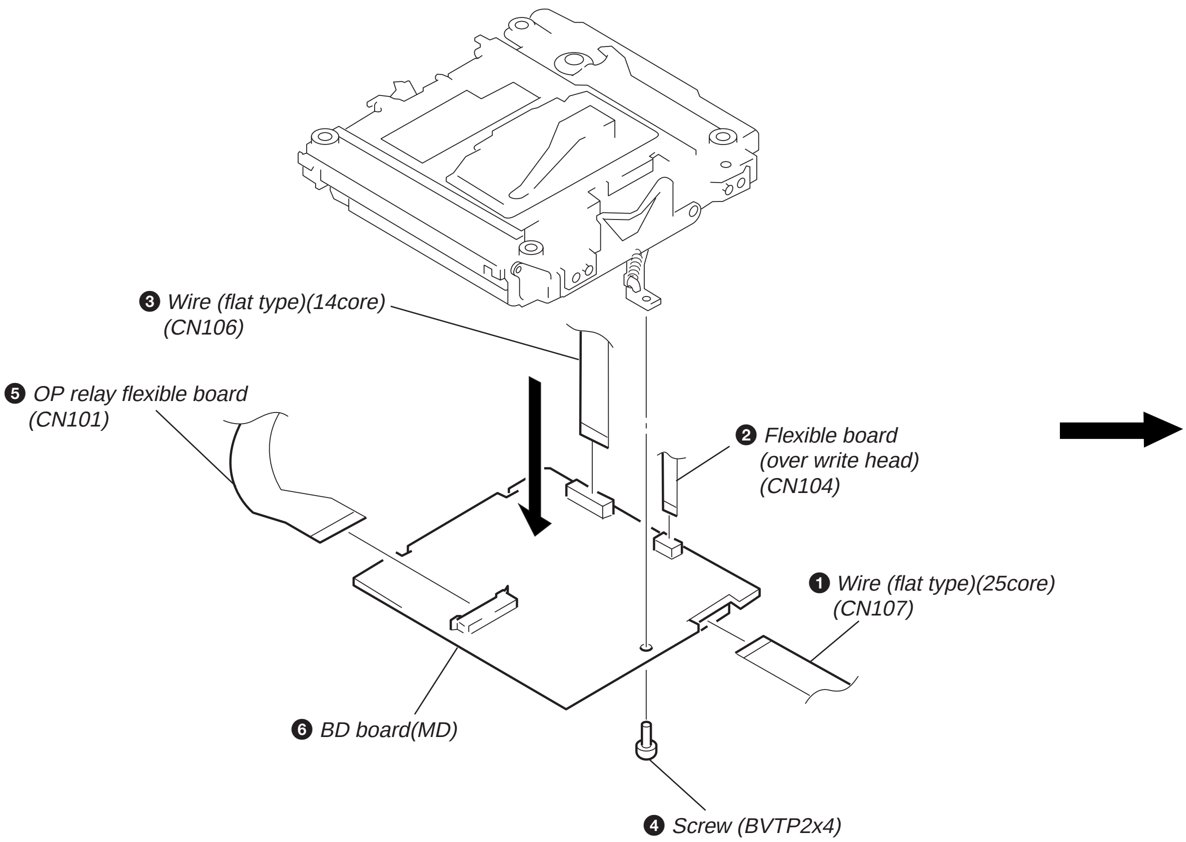
3-4. MD MECHANISM DECK (MDM-3D)



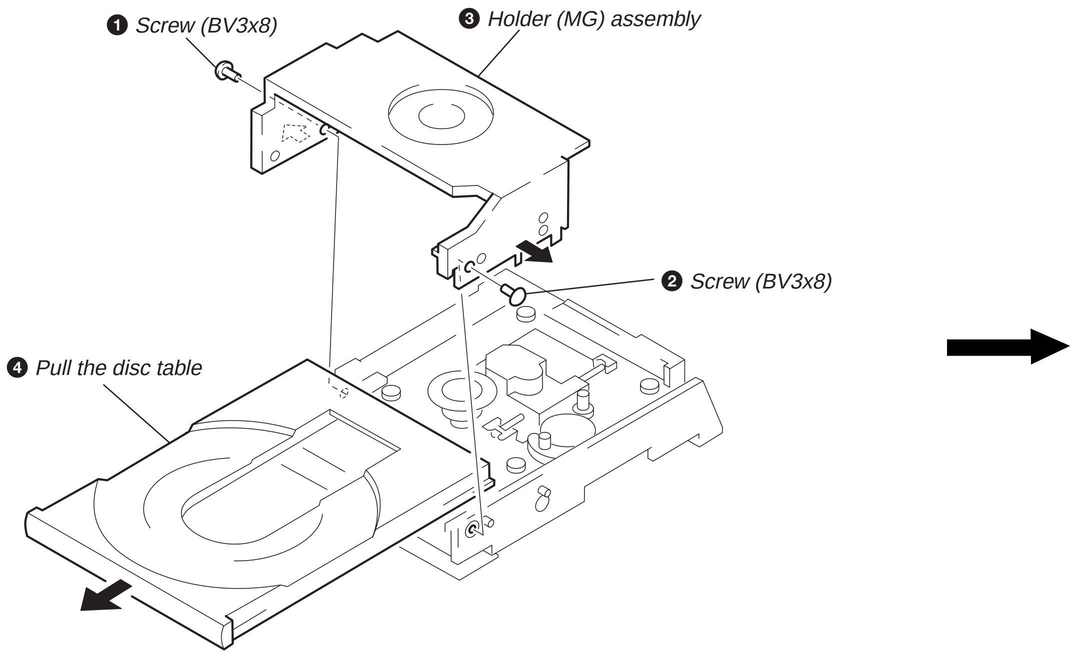
3-5. CD MECHANISM DECK (CDM13C-5BD19)



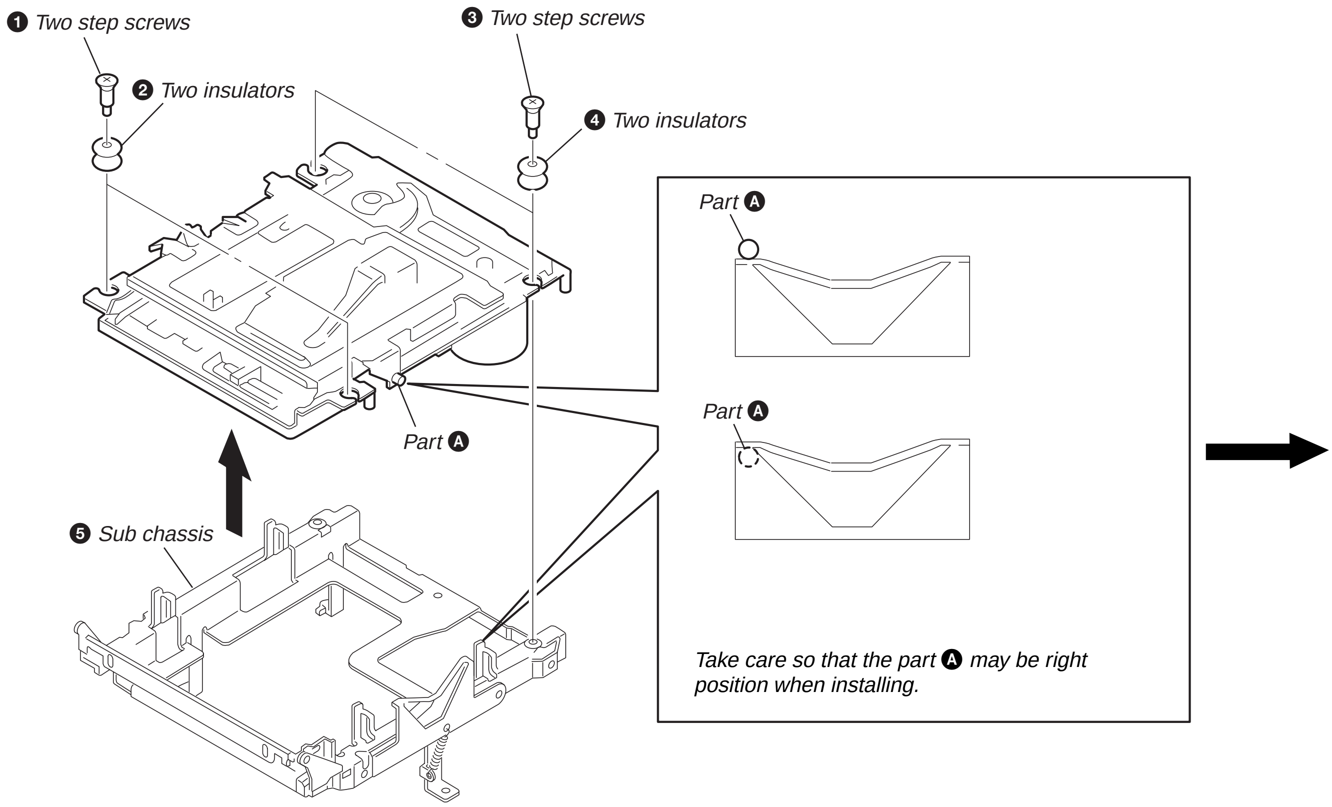
3-6. BD (MD) BOARD



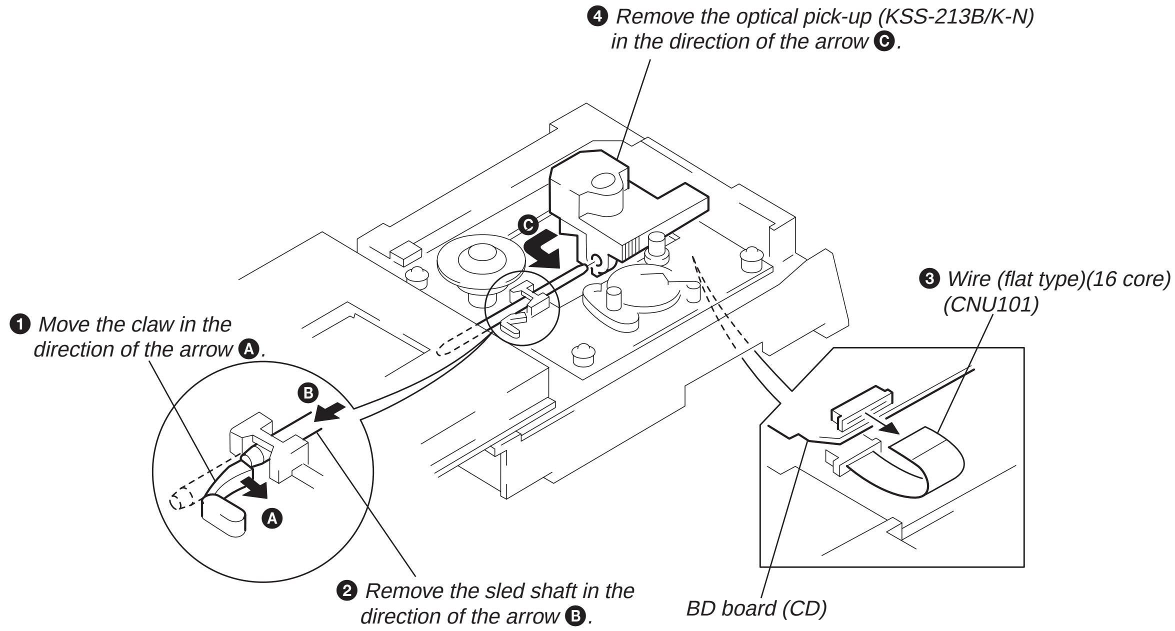
3-7. DISC TABLE



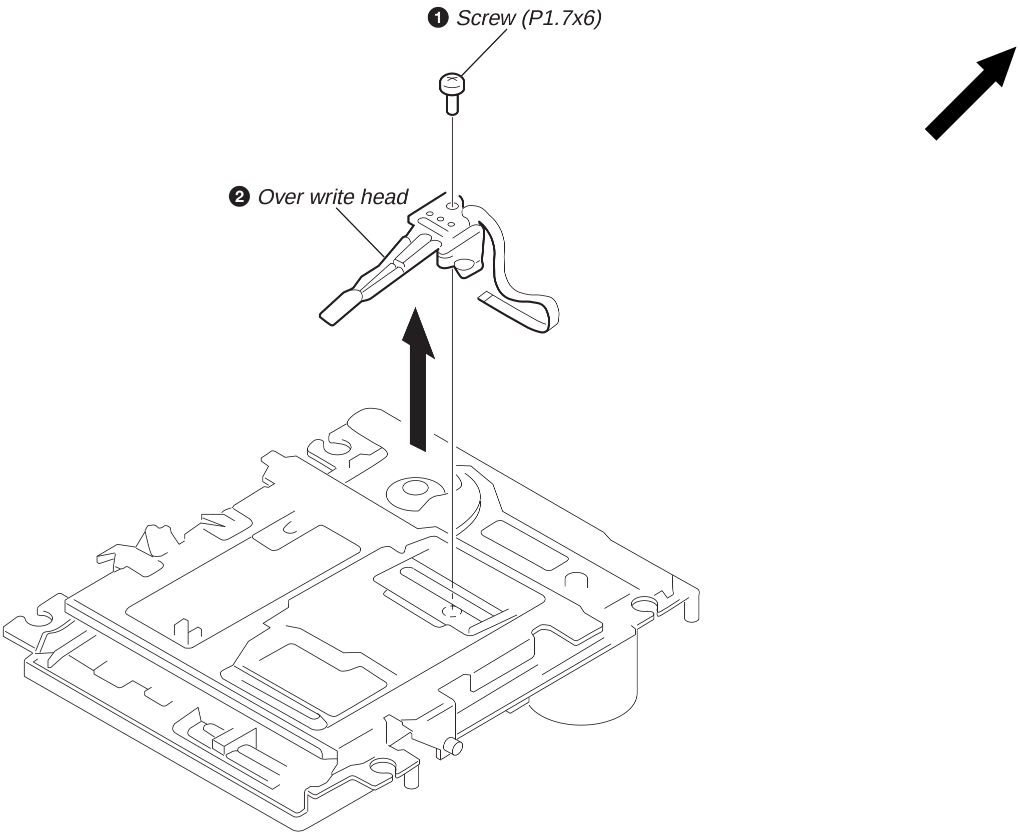
3-8. SUB CHASSIS



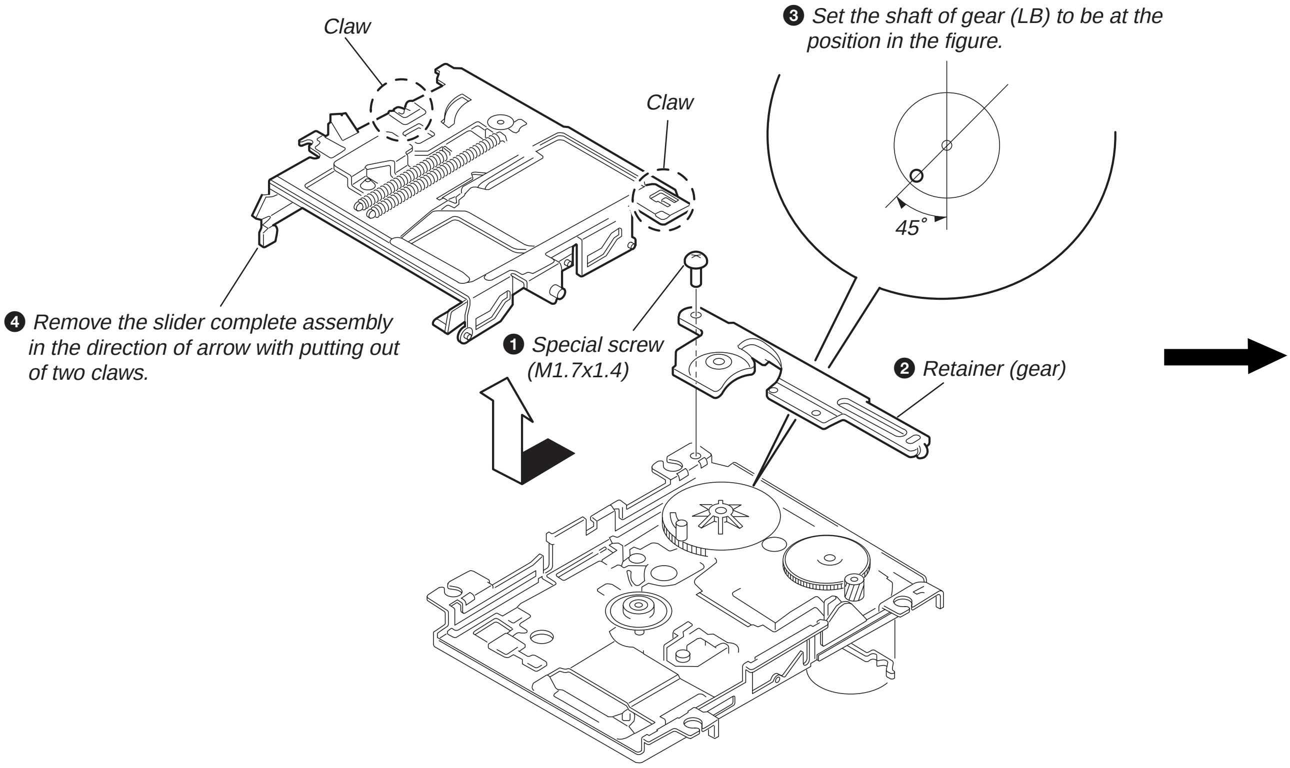
3-9. OPTICAL PICK-UP (KSS-213B/K-N)



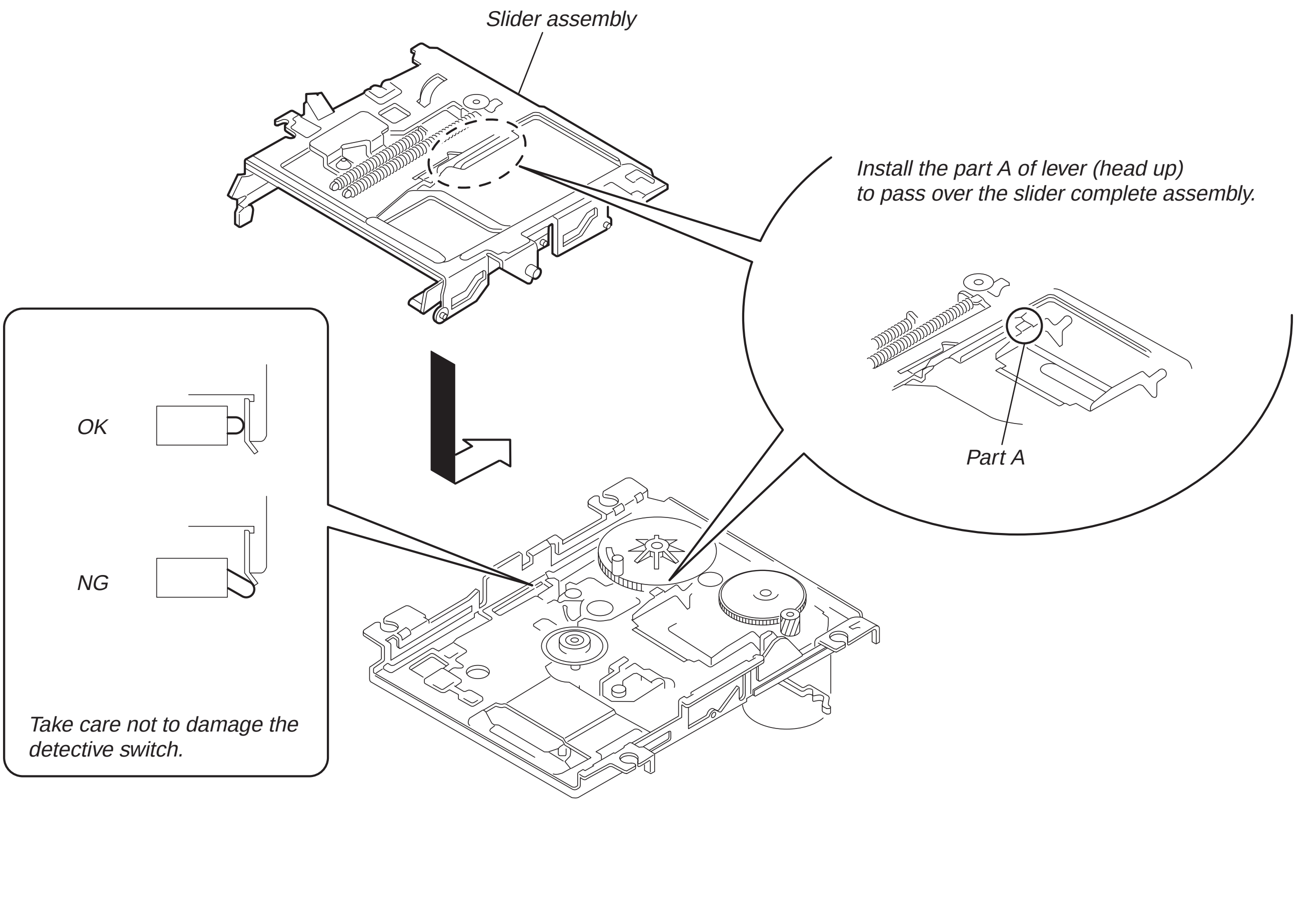
3-10. OVER WRITE HEAD



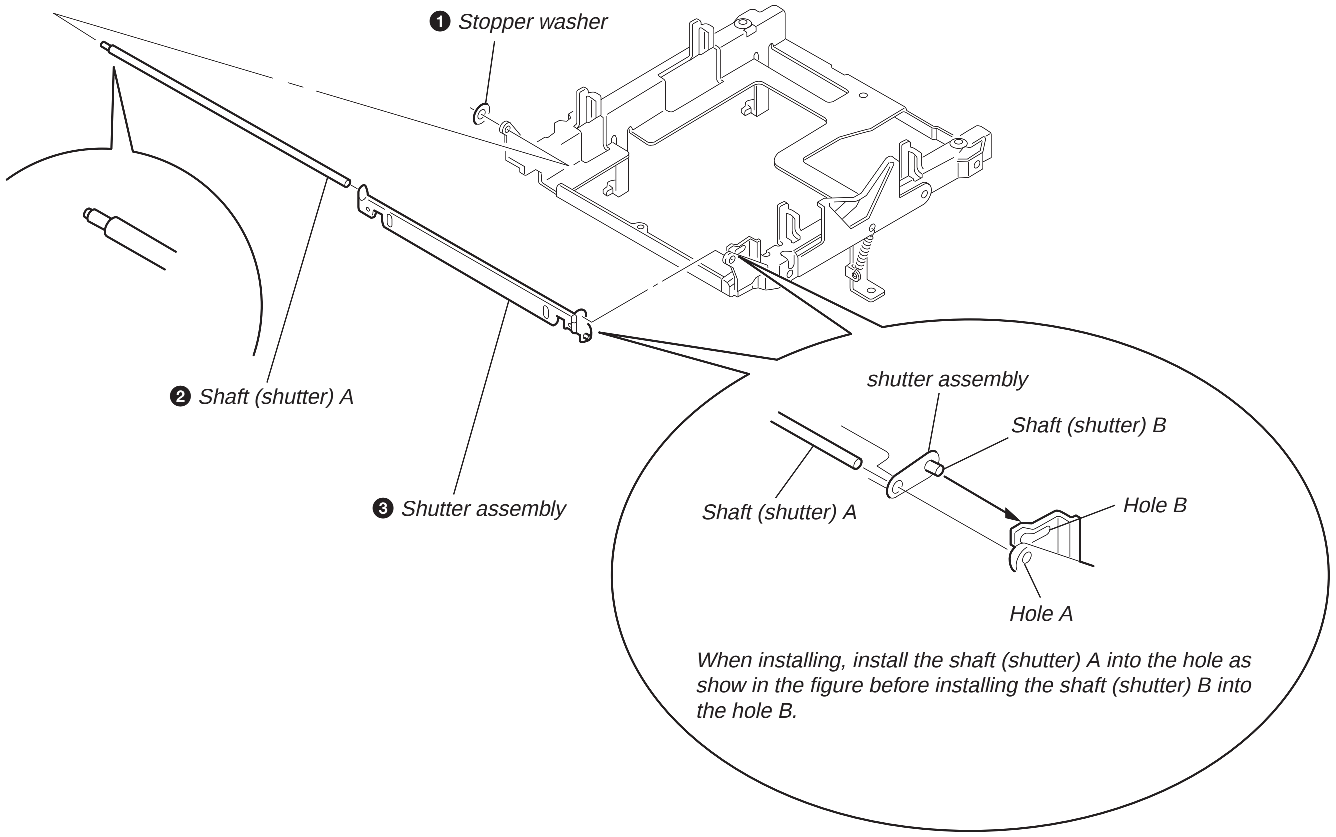
3-11. SLIDER COMPLETE ASSY



• Note for installation of Slider complete assembly



3-12. SHUTTER ASSY



SECTION 4
SERVICE MODE

Change-over of AM (MW) Tuner Step between 9 kHz and 10 kHz

- A step of AM (MW) channels can be changed over between 9 kHz and 10 kHz.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “TUNER”, and press [TUNER/BAND] button to select the BAND “AM (MW)”.
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to “AM (MW) 9 kHz STEP” or “AM (MW) 10 kHz STEP”, and thus the channel step is changed over.

Change-over of LW Tuner Step between 1 kHz and 3 kHz

- A step of LW channels can be changed over between 1 kHz and 3 kHz.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “TUNER”, and press [TUNER/BAND] button to select the BAND “LW”.
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to “LW 1 kHz STEP” or “LW 3 kHz STEP”, and thus the channel step is changed over.

LED and Fluorescent Indicator Tube All Lit, Key Check Mode

Procedure:

1. Press [PLAY MODE] and [■ (MD)] buttons simultaneously.
2. LEDs and fluorescent indiator tube are all turned on.
3. When the [FUNCTION] button is pressed, the fluorescent indicator tube lights up in the order of; partial lighting 1 → partial lighting 2 → all lit → partial lighting 1 → ······.
   When the [VOLUME] knob is rotated, the LED lighting pattern changes.
   To end without switching to the key check mode, press the [I/⏻] button to turn off the power.
4. Press [■ (CD)] button, and the key check mode is activated.
5. In the key check mode, the fluorescent indicator tube displays “KEY=0 JOG=0”. Each time a button is pressed, “KEY=” value increases. However, once a button is pressed, it is no longer taken into account.
   “JOG=” Value increases like 1, 2, 3 ... if rotating VOLUME knob in clockwise direction, or it decreases like 10, 9, 8 ... if rotating in counterclockwise direction.
6. To exit from this mode, press order all buttons (15 buttons), the displays “KEY=OK”, and press any button, or disconnect the power cord.

SUB CLOCK CHECK

Procedure:

1. Connect an oscilloscope to IC601 pin ⑨① and ground of the MAIN board.
2. Press [PLAY MODE] and [■ (MD)] buttons simultaneously, and the fluorescent indiator tube displays “32.768 kHz (91)”.
3. To check the signal on oscilloscope becomes 32 kHz square wave.
4. Press [I/⏻] button to exit.

SECTION 5
TEST MODE

5-1. PRECAUTIONS FOR USE OF TEST MODE

Recording Laser Emission Mode and Operating Buttons
- Continuous recording mode (CREC MODE)
- Traverse adjustment mode (EFBAL ADJUST)
- Laser power adjustment mode (LDPWR ADJUST)
- Laser power check mode (LDPWR CHECK)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)

5-2. SETTING THE TEST MODE
With the power off, press the ▶II (MD) button while pressing the PLAY MODE button.

5-3. EXITING THE TEST MODE
Press the REPEAT button. The STANDBY state will be set and the test mode will be cleared.

5-4. BASIC OPERATIONS OF THE TEST MODE
All operations are performed using the VOLUME knob, ■ (CD) button, and ▶II (CD) button.
The functions of these buttons are as follows.

Function name	Function
VOLUME knob	Changes parameters and modes
■ (CD) button	Proceeds onto the next step. Finalizes input.
▶II (CD) button	Returns to previous step. Stops operations.

5-5. SELECTING THE TEST MODE

There are altogether 26 test modes, shown in the following table. Rotating the [VOLUME] knob to the right switches to the mode below the current mode in the table while rotating to the left switches to the mode above. Each time the [►II (CD)] button is pressed, the display changes in the following order;
"TEMP CHECK" → "TEMP ADJUST" → "SLED MOVE" →"TEMP CHECK"…

Display	Contents	Mark
TEMP CHECK	Temperature compensation offset check	
LDPWR CHECK	Laser power check	
EF MO CHECK	Traverse (MO) check	
EF CD CHECK	Traverse (CD) check	
FBIAS CHECK	Focus bias check	
CPLAY MODE	Continuous playback mode	
CREC MODE	Continuous recording mode	
Scurve CHECK	S curve check	(X)
VERIFY MODE	Non-volatile memory check	(X)
DETRK CHECK	Detrack check	(X)
TEMP ADJUST	Temperature compensation offset adjustment	
LDPWR ADJUST	Laser power adjustment	
EF MO ADJUST	Traverse (MO) adjustment	
EF CD ADJUST	Traverse (CD) adjustment	
FBIAS ADJUST	Focus bias adjustment	
EEP MODE	Nonvolatile memory control	(X) (!)
MANUAL CMD	Command transfer	(X)
SVDATA READ	Status display	(X)
ERR DP MODE	Error history display, clear	
SLED MOVE	Sled check	(X)
ACCESS MODE	Access check	(X)
0920 CHECK	Outermost circumference check	(X)
WRITE sure?	Non-volatile memory Initialize	(X) (!)
HEAD ADJUST	Head position check	(X)
CPLAY2 MODE	Continuous playback mode	(X)
CREC2 MODE	Continuous recording mode	(X)
Ver @@@@@	Microprocessor version display	

- For details of each adjustment mode, refer to the items in "6. Electrical Adjustments". For details of "ERR DP MODE", refer to the self-diagnosis function on page 2.
- If other modes are set accidentally, press the [►II (CD)] button to exit that mode.
- As items marked (X) in the "Mark" column are not used during servicing, they are not described here. If these modes are set accidentally, press the [►II (CD)] button to exit the mode. Be especially careful with items marked (!) as they will overwrite the non-volatile memory, and as a result, the unit will not operate normally.

5-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit. (Recordable discs or discs for playback only.)
   ② Rotate the [VOLUME] knob and display "CPLAY MODE".
   ③ Press the [■ (CD)] button to change the display to "CPLAY MID".
   ④ When access completes, the display changes to "C = □□□□ AD = □□".
   Note : The numbers "□" displayed indicate the error rates and "ADER".

2. Changing the part to be played back
   ① When the [■ (CD)] button is pressed during continuous playback, the display changes as below, and the played back part can be changed.

   "CPLAY MID" → "CPLAY OUT" → "CPLAY IN" (returns to "CPLAY MID")

   ② When access completes, the display changes to "C1 = □□□□ AD = □□".
   Note : The numbers "□" displayed indicate the error rate and "ADER".

3. Ending the continuous playback mode
 ① Press the [▶II (CD)] button. The display changes to "CPLAY MODE".
 ② Press the [⏏ (MD)] button to remove the disc.
 Note : The playback start addresses for IN, MID, and OUT are as follows. To display the playback position address on the display, press the [I/⏻] button to display "CPLAY (□□□□)".
 IN: 40h cluster
 MID: 300h cluster
 OUT: 700h cluster

5-5-2. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
 ① Set a recordable disc in the unit. (Refer to Note 3.)
 ② Rotate the [VOLUME] knob and display "CREC MODE".
 ③ Press the [■ (CD)] button to change the display to "CREC MID".
 ④ When access completes, the display changes to "CREC (□□□□)" and the **REC** display lights up.
 Note : The numbers "□" displayed indicate the recording position address.

2. Changing the part to be recorded
 ① When the [■ (CD)] button is pressed during continuous recording, the display changes as below and the recorded part can be changed.
 The **REC** display is off while changing.
 "CPLAY MID" → "CPLAY OUT" → "CPLAY IN" (→ back to "CPLAY MID")
 ② When access completes, the display changes to "CREC MODE" and the **REC** display lights up.
 Note : The numbers "□" displayed indicate the recording position address.

3. Ending the continuous recording mode
 ① Press the [▶II (CD)] button. The display changes to "CREC (□□□□)", and the **REC** display lights up.
 ② Press the [⏏ (MD)] button to remove the disc.
 Note 1 : The recording start addresses for IN, MID, and OUT are as follows.
 IN: 40h cluster
 MID: 300h cluster
 OUT: 700h cluster
 Note 2 : The [▶II (CD)] button can be used to stop recording anytime.
 Note 3 : Do not perform continuous recording for long periods of time above 5 minutes.
 Note 4 : During continuous recording, be careful not to apply vibration.

5-5-3. Non-Volatile Memory Mode (EEP MODE)

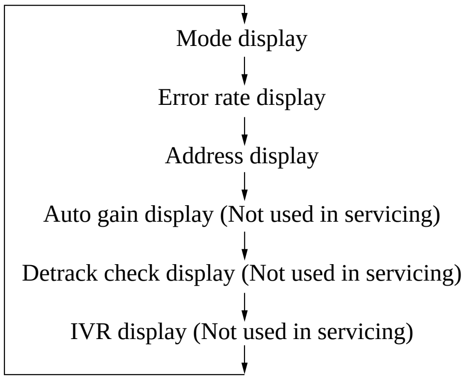
This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If set accidentally, press the [▶II (CD)] button immediately to exit it.

5-6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
▷II	Sets continuous playback when pressed in the STOP state. Turns ON/OFF the tracking servo when pressed during continuous playback.
■	Stops the continuous playback and recording.
▶▶ ▶▶I	Moves the sled to the external circumference only while the button is pressed.
I◀◀ ◀◀	Moves the sled to the internal circumference only while the button is pressed.
CD-MD SYNC	Switches between pit and groove when pressed.
I/⏻	Switches the displayed contents when pressed.
⏏ (MD)	Ejects the disc.
REPEAT	Exits the test mode.

5-7. DISPLAYS DURING TEST MODE

The display changes according to the following sequence each time the [I/⏻] button is pressed.



1. Mode display

"TEMP ADJUST" and "CPLAYMODE" are displayed.

2. Error rate display

The error rate is displayed as follows.
C = □□□□ AD = □□
C = :Indicates the C1 error.
AD = :Indicates ADER.

3. Address display

The address is displayed as follows. (MO: Recordable disc, CD: Disc for palyback only)
When the [CD-MD SYNC] button is pressed, the display will switch between groove and pit.

h = □□□□ s = □□□□ (MO pit and CD)
h = □□□□ a = □□□□ (MO groove)
h = Indicates the header address.
s = Indicates the SUBQ address.
a = Indicates the ADIP address.

Note: Displayed as "–" when servo is operated.

4. Auto gain display (Not used in servicing)

The auto gain is displayed as follows.
AG = □□ / □□. □□

5. Detrack check display (Not used in servicing)

The detrack is displayed as follows.
ADR = □□□□□□□□

6. IVR display (Not used in servicing)

IVR is displayed as follows.
[□□][□□][□□

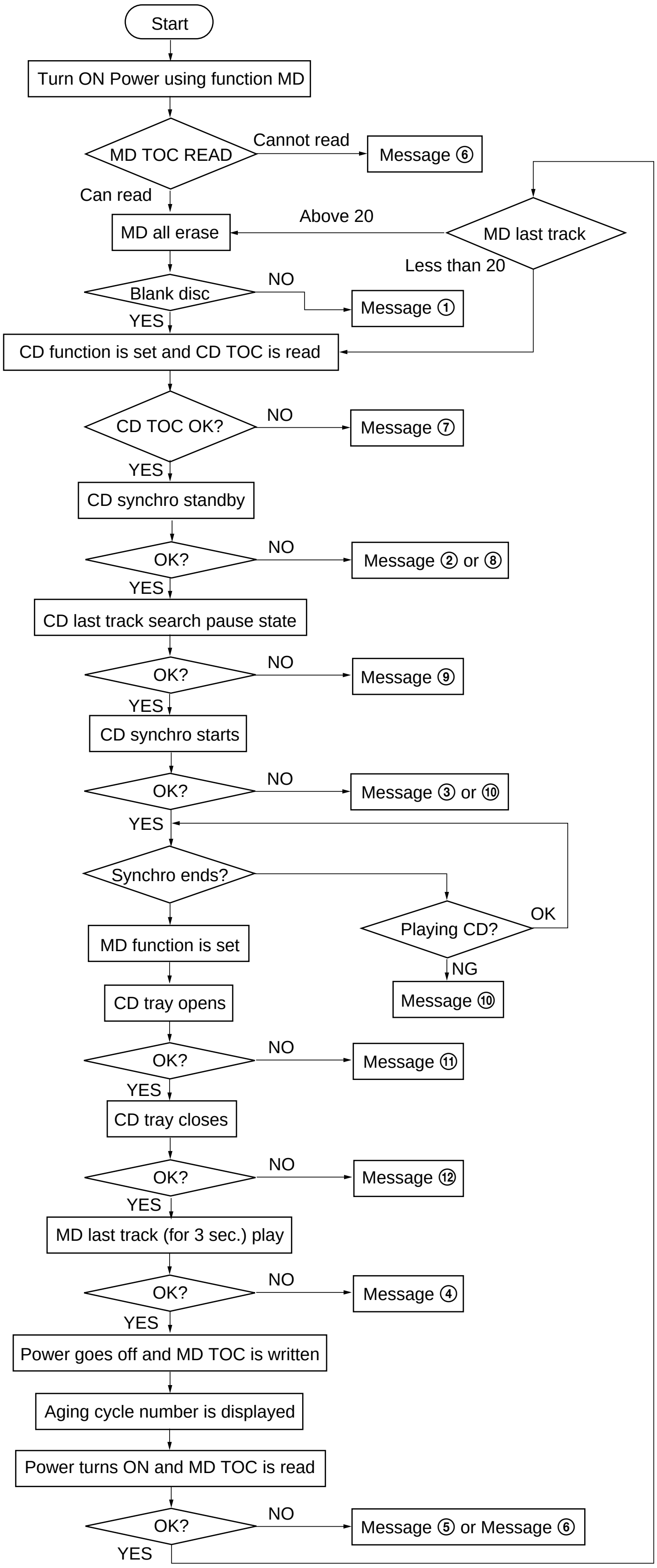
Meanings of other displays

Display	Contents	
	When Lit	When Off
REC	Recording mode ON	Recording mode OFF
ATT	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
SHUFFLE	Focus auto gain OK	
TRACK	Pit	Groove
DISC	High reflection rate	Low reflection
LEVEL-SYNC	CLV-S	CLV-A
SYNC	CLV LOCK	CLV UNLOCK

5-8. AGING MODE

This unit is provided with an aging mode.
In this mode, MD and CD operations are performed alternately according to the following sequence.
Aging will be carried out continuously unless an error occurs.
If an error occurs, the status and number of cycles are displayed alternately, and operations stop. (Refer to Table 1.)

Aging Mode Sequence



Procedure:

1. Load a recordable disc (MD) and CD test disc (YEDS-18). (*Note 1)
2. While pressing the [PLAY MODE] button, press the [▶II (CD)] button.
3. Aging is executed in the above sequence.
4. To end, press the [■ (CD or MD)] button.

***Note 1:** Any CD can be used, but one with a short last track is recommended. The time of one aging cycle will be longer if the last track is long.
Also use a CD in which the length of the last track x 20 does not exceed the recording time of the recording MD.

Table 1. Messages and Main Causes When Aging Stops

No	Error Messages	Details of Error	Main Causes
①	MD A Erase NG	Cannot MD all erase.	A disc for playback only was used. The rec-proof tab is set to protect. Disc error, etc.
②	MD R-Pause NG	Cannot set MD Rec Pause.	Disc is full, etc.
③	MD D-input NG	Cannot lock MD digital in.	————————
④	MD Play NG	Cannot play last track.	Access error, etc.
⑤	MD TOC NG	MD TOC are different.	No. of total tracks does not match logic value.
⑥	MD No Disc NG	Cannot read MD TOC.	Disc error, etc.
⑦	CD No Disc NG	Cannot read CD TOC.	Optical defect, spindle defect (including motor), cannot read Q data, disc defect (scratches, etc.), bad focus, bad GFS, etc.
⑧	CD Pause NG	Cannot set CD pause in CD synchro mode.	Disc defect (scratches, etc.), cannot read Q data, etc.
⑨	CD Search NG	Cannot search last track on CD.	Optical defect, sled, tracking defect (including motor), cannot read Q data, disc defect (scratches, etc.).
⑩	CD Play NG	Cannot play last track on CD.	Optical defect, cannot read Q data, disc defect (scratches, etc.), etc.
⑪	CD Open NG	Cannot open CD tray.	LOAD OUT SW defect
⑫	CD Close NG	Cannot close CD tray.	LOAD IN SW defect

SECTION 6
ELECTRICAL ADJUSTMENTS

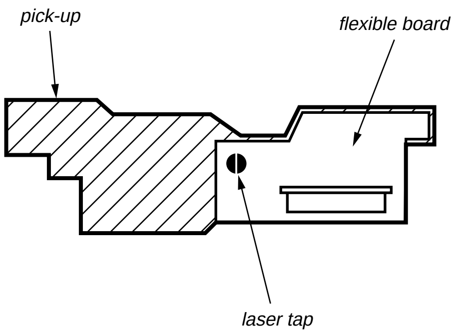
MD SECTION

6-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSINON

When checking the emission of the laser diode during adjustments, never view directly from the top as this may cause blindness.

6-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, solder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

6-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform adjustments and checks marked O in the order shown in the following table.

	Optical Pick-up	BD Board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	O	O	O
2. Laser power adjustment	O	O	×	O
3. Traverse adjustment	O	O	×	O
4. Focus bias adjustment	O	O	×	O
5. Error rate check	O	O	×	O

2) Perform the adjustment in the test mode.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Check disc (MD) TDYS-1 (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A) or MD Laser power meter 8010S (Parts No. J-2501-145-A)
   - Oscilloscope (Measure after calibration of the probe).
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (The VC and ground will short-circuit.)

Note : When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (J-2501-145-A) instead of the conventional laser power meter is convenient.
It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of the pick-up.

6-4. CREATING THE CONTINUOUSLY RECORDED DISC

- The disc is used for the focus bias adjustment and error rate check. The following describes how to create a continuously recorded disc.

1. Insert a disc (blank disc) commercially available.
2. Rotate the [VOLUME] knob to display “CREC MODE”.
3. Press the [■ (CD)] button to display “CREC MID”.
   “CREC (0300)” will be momentarily displayed and recording started.
4. Complete recording within 5 minutes.
5. Press the [►II (CD)] button and stop recording .
6. Press the [⏏ (MD)] button and remove the disc.

Create the continuous recorded disc for adjusting the focus bias and checking the error rate as described above.

Note :

- Be careful not to apply vibrations during continuous recording.

6-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the current temperature data in the non-volatile memory as the 25 °C standard data.

Notes:

1. Normally, this adjustment should not be preformed.
2. Set the surrounding temperature to 22 to 28 °C when performing this adjustment.
   Also perform this adjustment immediately after the power is turned on when the internal temperature of the unit is the same as the surrounding temperature (22 to 28 °C).
3. After replacing D101, perform this adjustment after the temperature of parts reach the surrounding temperature.

Adjusting Procedure:

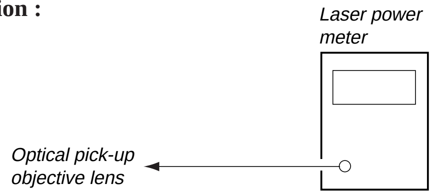
1. Rotate the [VOLUME] knob, to display “TEMP ADJUST”.
2. Press the [■ (CD)] button and select the “TEMP ADJUST” mode.
3. “TEMP= ▯▯ ” and the current temperature data are displayed.
4. To save the data: Press the [■ (CD)] button.
   If not saving the data: Press the [►II (CD)] button.
5. When the [■ (CD)] button is pressed, “TEMP= ▯▯ SAVE” is displayed, and then “TEMP ADJUST” is displayed again.
   “TEMP ADJUST” is displayed again immediately after the [►II (CD)] button is pressed.

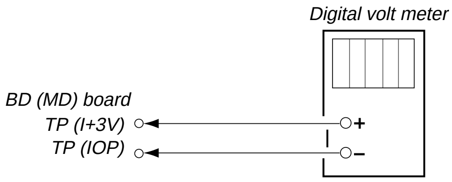
Specifications:

TEMP= ▯▯ should be E0 to EF. F0 to FF, 00 to 0F, 10 to 1F and 20 to 2F.

6-6. LASER POWER ADJUSTMENT

Connection :





Adjusting Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up from the disc slot. (If it cannot be set properly, press the [⏮ ◀◀] or [▶▶ ⏭] button to move the optical pick-up).
   Connect the digital voltmeter to TP (I+3V) and TP (IOP) of the BD (MD) board.
2. Rotate the [VOLUME] knob to display “LDPWR ADJUST”.
   (Laser power: For adjustment)
3. Press the [■ (CD)] button once to display “LD 0.9 mW $ □□”.
4. Rotate the [VOLUME] knob so that the laser power meter reads 0.86 to 0.92 mW. Set the range knob of the laser power meter to 10 mW, press the [■ (CD)] button, and save the adjustment results in the non-volatile memory. (“LD SAVE $ □□” is displayed momentarily.)
5. “LD 7.0 mW $ □□” is next displayed.
6. Rotate the [VOLUME] knob so that the laser power meter reads 6.9 to 7.1 mW, press the [■ (CD)] button, and save the adjustment results in the non-volatile memory. (“LD SAVE $ □□” is displayed momentarily.)

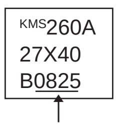
Note: Do not emit 7.0 mW continuously for more than 15 seconds.

7. Rotate the [VOLUME] knob to display “LDPWR CHECK”.
8. Press the [■ (CD)] button once to display “LD 0.9 mW $ □□”.
   Check that the laser power meter reading is 0.85 to 0.91 mW.
9. Press the [■ (CD)] button another time to diaplay “LD 7.0 mW $ □□”.
   Check that the readings of the laser power meter and digital voltmeter become the specified value.

Specified Value :

Laser power meter reading : 7.0 ± 0.1 mW
Digital voltmeter reading : Value displayed on optical pick-up label ± 10%

(Optical pick-up label)

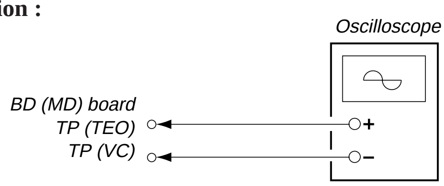


Iop = 82.5 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

10. Press the [▶II (CD)] button to display “LDPWR CHECK” and stop the laser emission.
    (The [▶II (CD)] button is effective at all times to stop the laser emission.)

6-7. TRAVERSE ADJUSTMENT

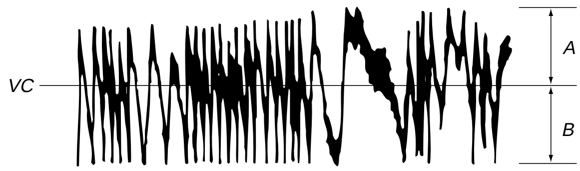
Connection :



Adjusting Procedure:

1. Connect an oscilloscope to TP (TEO) and TP (VC) of CN110 of the BD (MD) board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
3. Press the [⏮ ◀◀] or [▶▶ ⏭] button to move the optical pick-up outside the pit.
4. Rotate the [VOLUME] knob to display “EFBAL ADJUST”.
5. Press the [■ (CD)] button to display “EFB = □□ MO-R”.
   (Laser power READ power/Focus servo ON/tracking servo OFF/ spindle (S) servo ON)
6. Rotate the [VOLUME] knob so that the oscilloscope waveform becomes the specified value. (Rotating the [VOLUME] knob changes the “EFB= □□” value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Read power traverse adjustment)

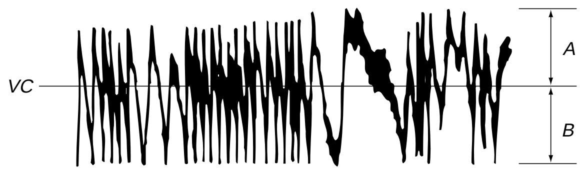
(Traverse Waveform)



Specified value : A = B

7. Press the [■ (CD)] button and save the adjustment results in the non-volatile memory (displayed as “EFB = □□ SAVE” momentarliy and then displayed as “EFB = □□ MO-W”).
8. Rotate the [VOLUME] knob so that the oscilloscope waveform becomes the specified value.
   (Rotating the [VOLUME] knob changes the “EFB= □□” value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Write Power Traverse Adjustment)

(Traverse Waveform)

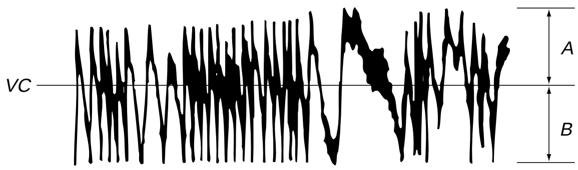


Specified value : A = B

9. Press the [■ (CD)] button to save the adjustment results in the non-volatile memory (displayed as “EFB = □□ SAVE” momentarliy).

10. Next “EFB = □□ MO-P” is displaed, the optical pick-up moves to the internal circumference of the pit and servo is imposed.
11. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted.
    Adjust as close as possible to the specified value.

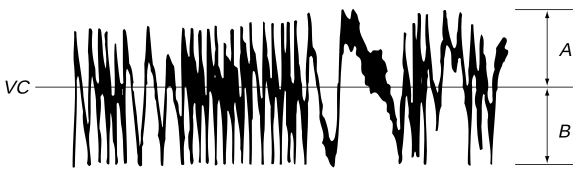
(Traverse Waveform)



Specified value : A = B

12. Press the ■ (CD) button and save the adjustment results in the non-volatile memory (displayed as “EFB = □□ SAVE” momentarliy).
    “EFBAL: CD is next displayed and the disc stops rotating automatically.
13. Press the ⏏ (MD) button and remove the disc.
14. Load the check disc (MD) TDYS-1.
15. Press the ■ (CD) button to display “EFB = □□ CD”. The servo is imposed automatically.
16. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted.
    Adjust as close as possible to the specified value.

(Traverse Waveform)

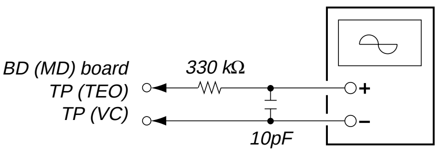


Specified value : A = B

17. Press the ■ (CD) button and save the adjustment results in the non-volatile memory after “EFB = □□ SAVE” is momentarliy displayed.
    “EFBAL ADJUST” is next displayed.
18. Press the ⏏ (MD) button and remove the check disc (MD) TDYS-1.

Note 1 : The data will be overwritten on the MO and erased when a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



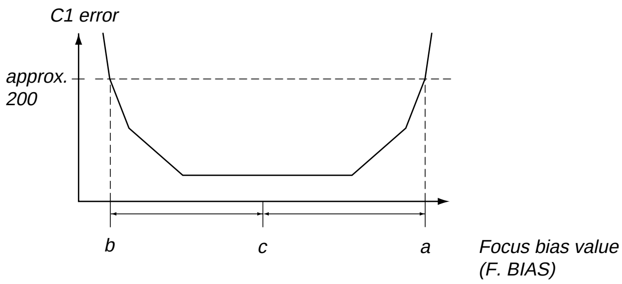
6-8. FOCUS BIAS ADJUSTMENT

Adjusting Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. When “C1 = □□□□ AD = □□” is displayed, press the ►II (CD) button.
5. Rotate the VOLUME knob to display “FBIAS ADJUST”.
6. Press the ■ (CD) button to display “ □□□□/□□ a = □□”.
   The first four digits indicate the C1 error rate, the two digits after the “/” indicate ADER and the two digits after “a =” indicate the focus bias value.
7. Rotate the VOLUME knob in the clockwise direction, and look for the focus bias value at which the C1 error rate becomes approximately approx. 200. (Refer to Note 2).
8. Press the ■ (CD) button to display “ □□□□/□□ b = □□”.
9. Rotate the VOLUME knob in the counterclockwise direction, and look for the focus bias value at which the C1 error rate becomes approx. 200.
   Check that the C1 error rate becomes almost equal to the value set in step 7.
10. Press the ■ (CD) button to display “ □□□□/□□ c = □□”.
11. Check that the C1 error rate is below 50 and that ADER is 00. and press the ■ (CD) button.
12. If the value of “(□□)” in the “□□ - □□ - □□ (□□)” displayed is above 20, press the ■ (CD) button.
    If below, press the ►II (CD) button and start from step 2 again.
13. Press the ⏏ button and remove the continuously recorded disc.

Note 1 : The following figure shows the relation between the C1 error and focus bias value. Look for points a and b in the following figure by the adjustment avove. The focus position (point c) is automatically calculated from points a and b.

Note 2 : As the C1 error rate changes, use the average value in the adjustment.



6-9. ERROR RATE CHECK

6-9-1. CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C1 = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 20.
6. Press the ▶II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the check disc (MD).

6-9-2. MO Error Rate Checking

Checking Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C1 = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 50 and ADER is 00.
6. Press the ▶II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the disc.

6-10. FOCUS BIAS CHECK

Change the focus bias value and check the focus tolerance amount.

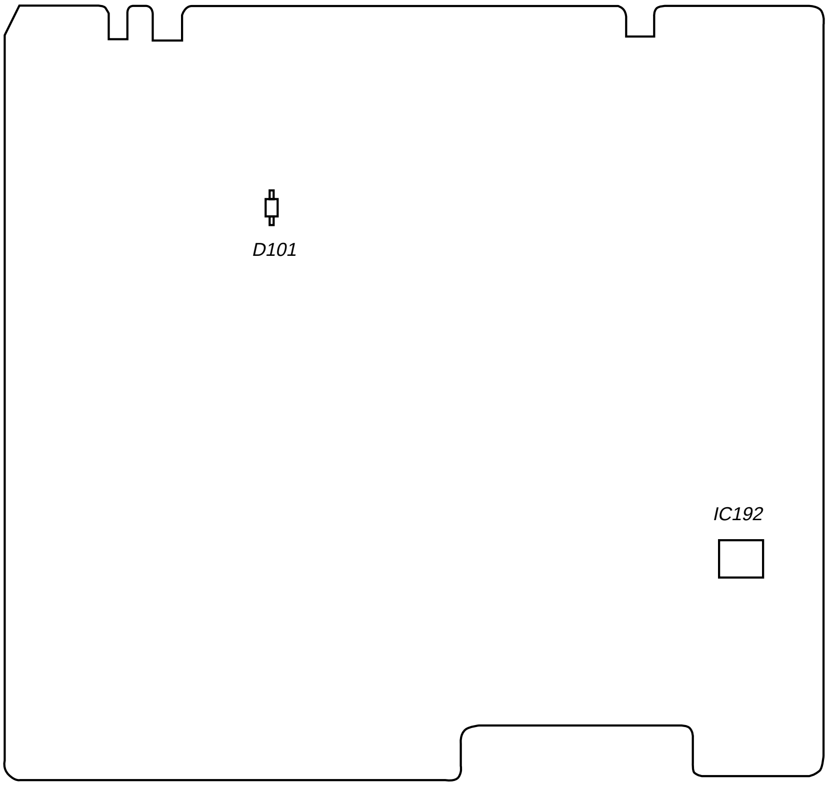
Checking Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. When “C1 = □□□□ AD = □□” is displayed, press the ▶II (CD) button.
5. Rotate the VOLUME knob to display “FBIAS CHECK”.
6. Press the ■ (CD) button to display “ □□□□/□□ c = □□”.
   The first four digits indicate the C1 error, the two digits after the “/” indicate ADER and the two digits after “c =” indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the ■ (CD) button to change the display to “ □□□□/□□ b = □□”.
   Check that the C1 error does not drop below 220 and ADER does not remain above 00.
8. Press the ■ (CD) button to change the display to “ □□□□/□□ a = □□”.
   Check that the C1 error does not drop below 220 and ADER does not remain above 00.
9. Press the ▶II (CD) button, press the ⏏ (MD) button next, and remove the continuously recorded disc.

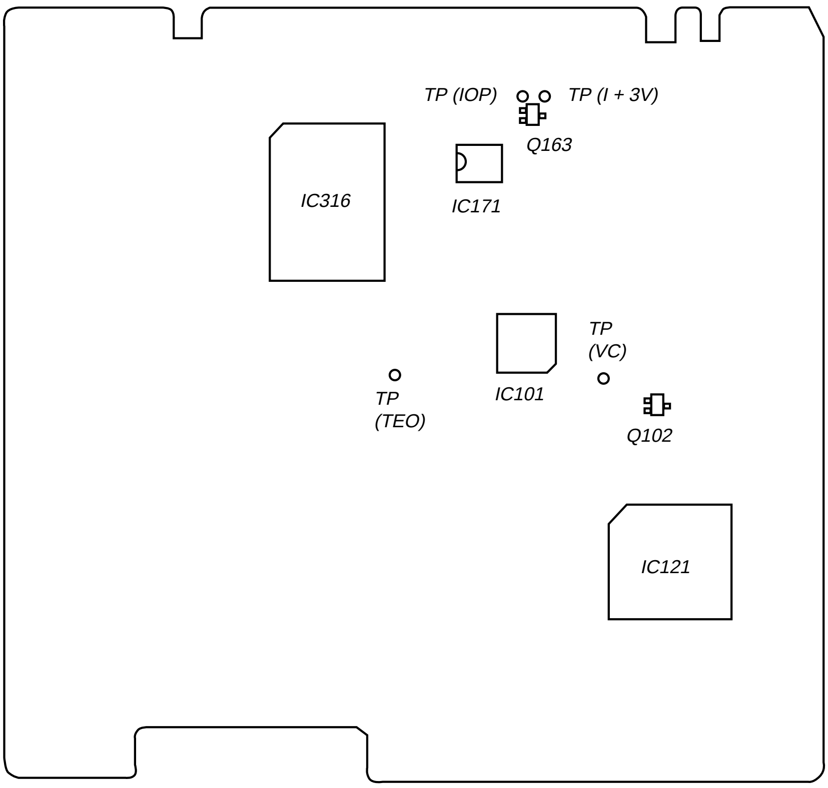
Note 1 : If the C1 error is above 220 or ADER is above 00 only for point a (step 8 above) and point b (step 7 above), the focus bias may not adjusted properly. In this case, adjust again.

6-11. ADJUSTING POINTS AND CONNECTING POINTS

[BD (MD) BOARD] (SIDE A)



[BD (MD) BOARD] (SIDE B)



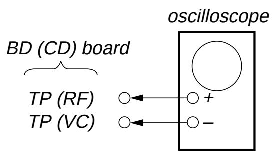
CD SECTION

Note:

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with lens cleaning liquid when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical block is replaced.

Focus Bias Adjustment

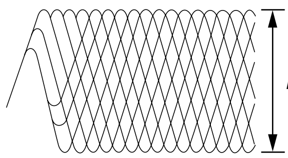
Perform this adjustment when the optical pick-up has been replaced or repaired.



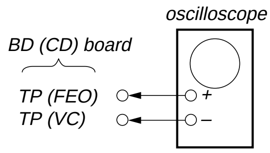
Procedure:

1. Connect oscilloscope to test point TP (RF).
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Adjust RV101 so that the waveform is clear.
   (Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.)
5. After adjustment, check the RF signal level.

• RF signal
  VOLT/DIV: 200 mV
  TIME/DIV: 500 nS



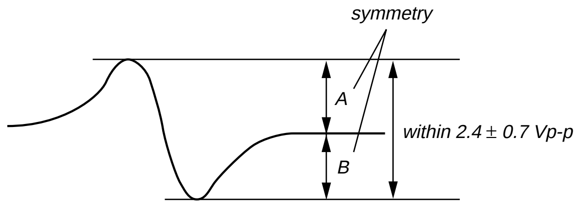
S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and Ground by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

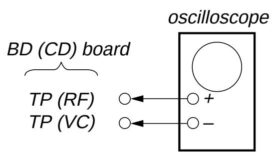
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note: • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

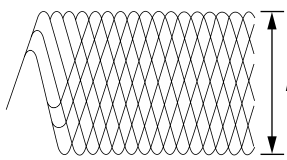


Procedure :

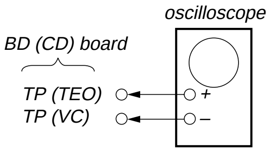
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform



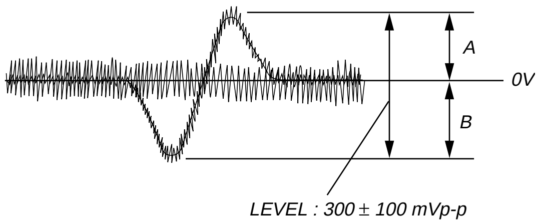
E-F Balance (1 Track Jump) Check
(Without remote commander)



Procedure :

1. Connect oscilloscpe to test point TP (TEO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the "❚❚ (Pause)" button. (Becomes the 1 track jump mode)
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

1 track jump waveform



Specified level: • $\frac{A - B}{2\,(A + B)}$ x 100 = less than ± 7%

• A + B = 300 ± 100 mVp-p

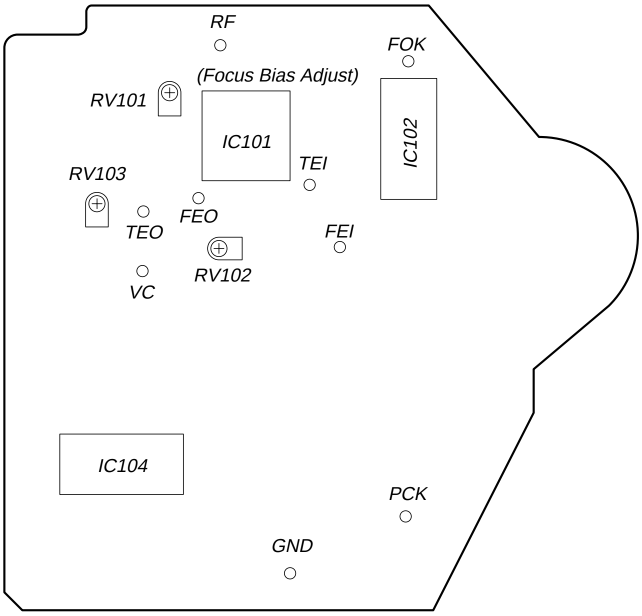
6. Remove the lead wire connected in step 1.

Focus/Tracking Gain Adjustment (RV102, RV103)

This gain has a margin, so even if it is slightly off.
There is no problem.
Therfore, do not perform this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

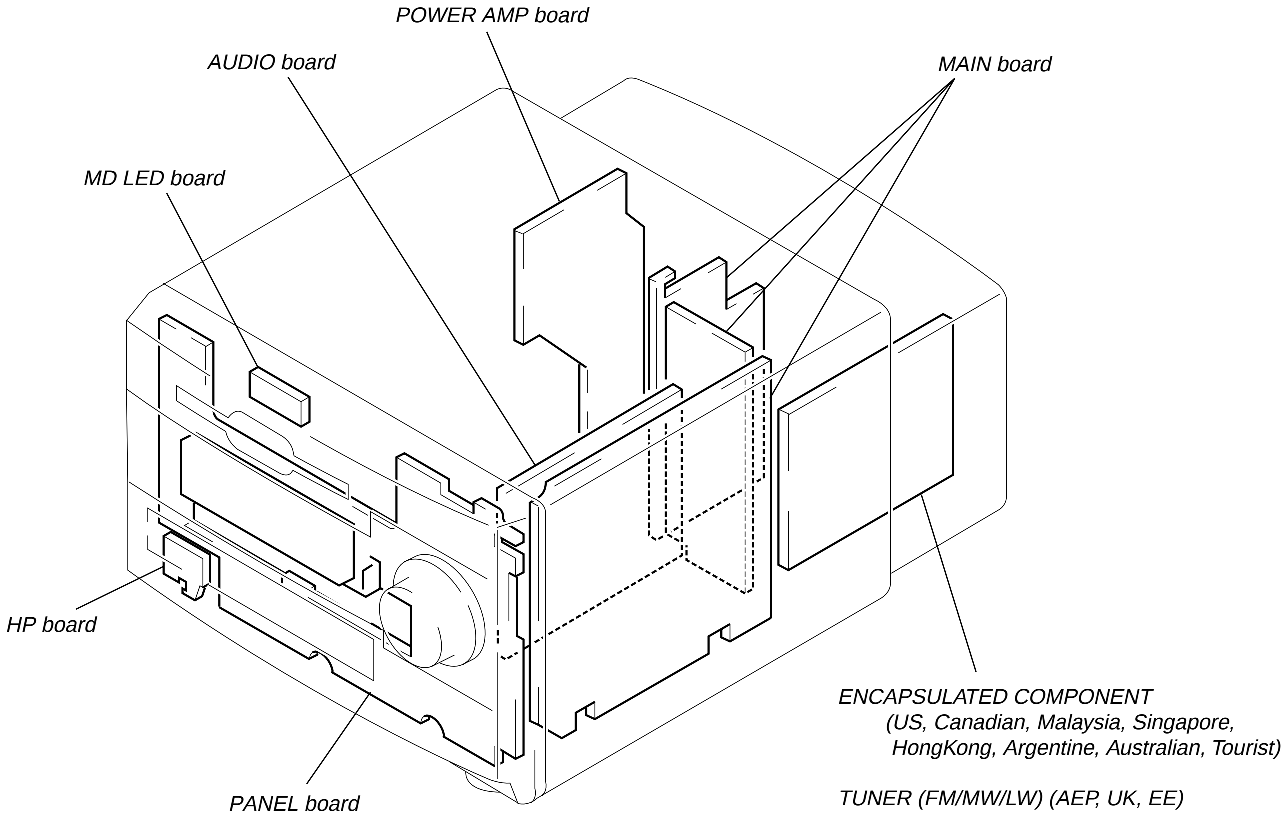
Adjustment Location:

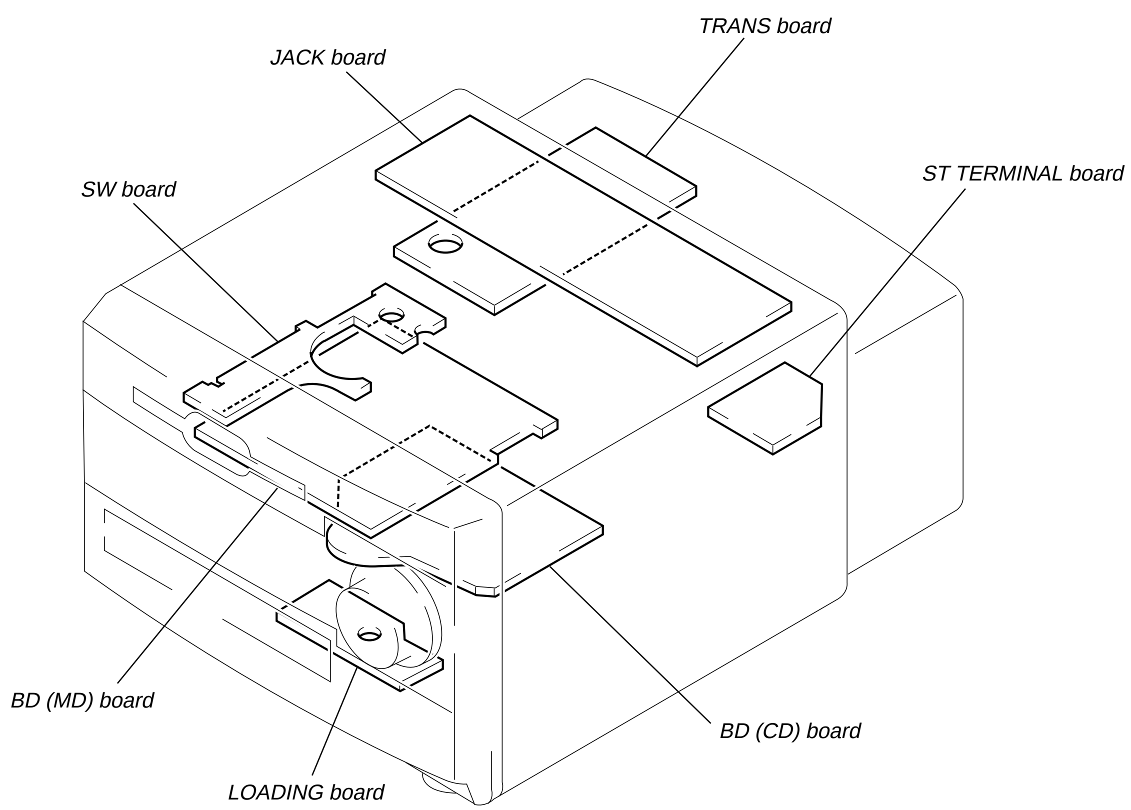
[BD (CD) BOARD] — Component Side —



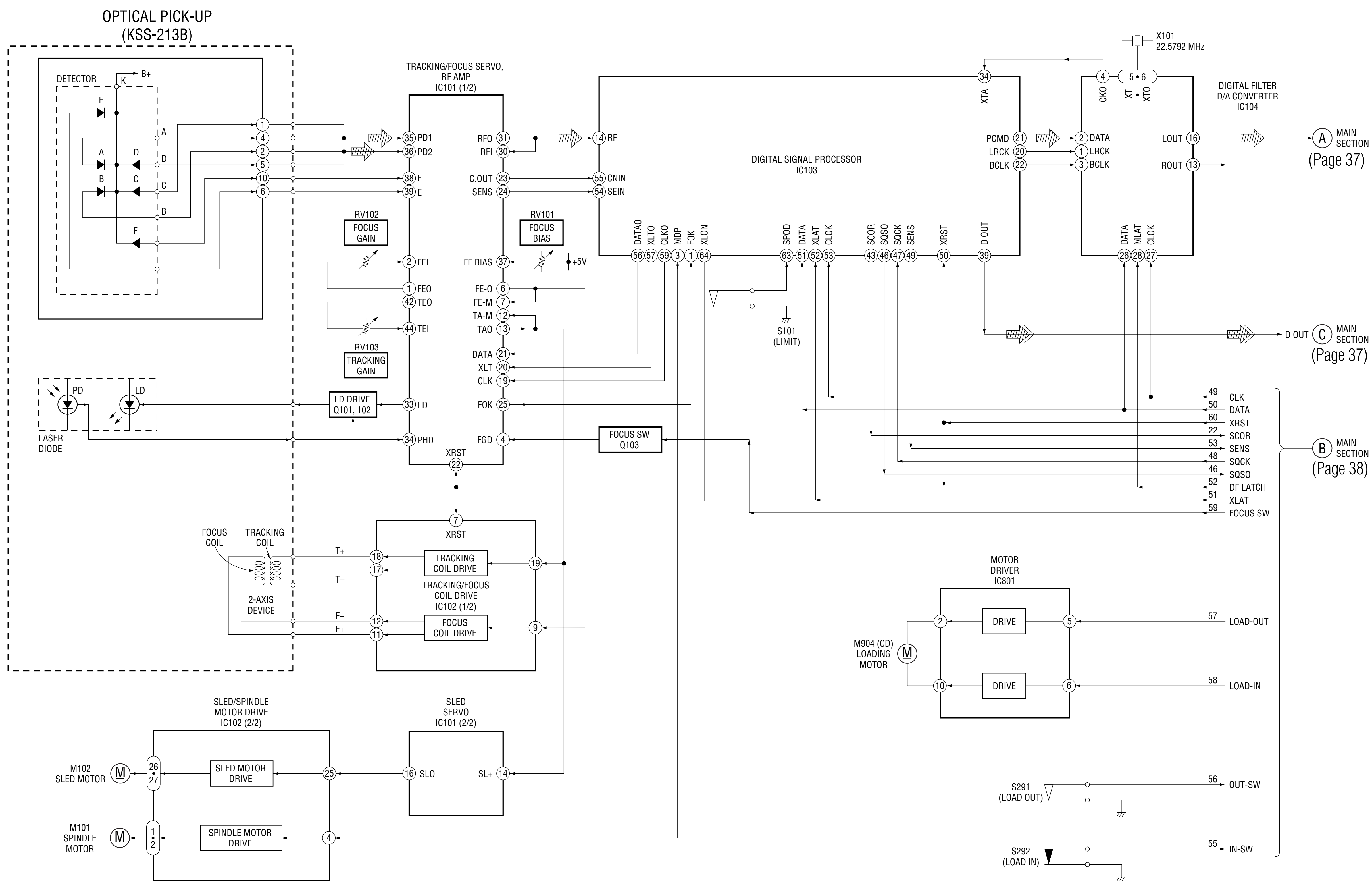
SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION





7-2. BLOCK DIAGRAMS
– CD SECTION –

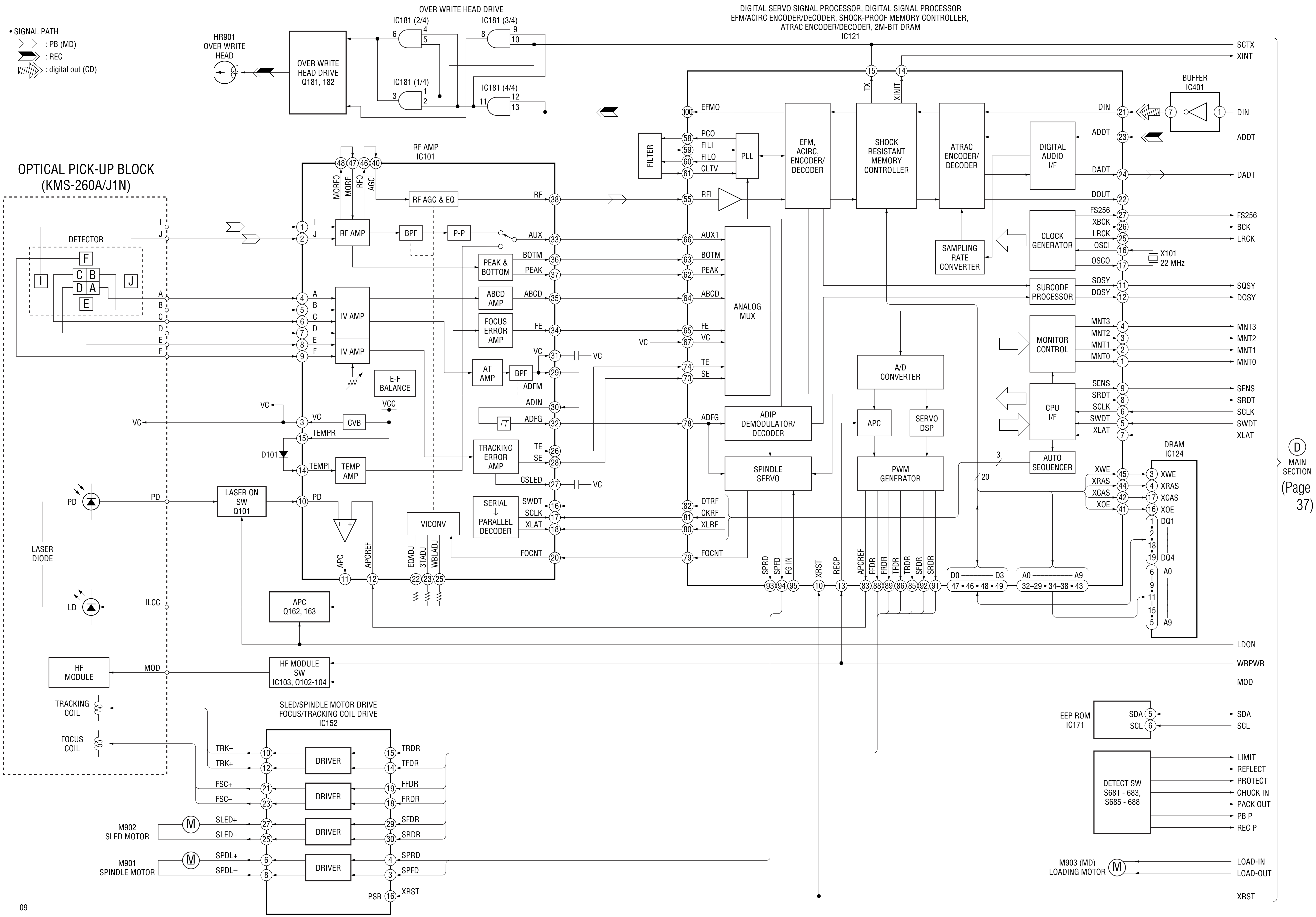


• SIGNAL PATH

:CD

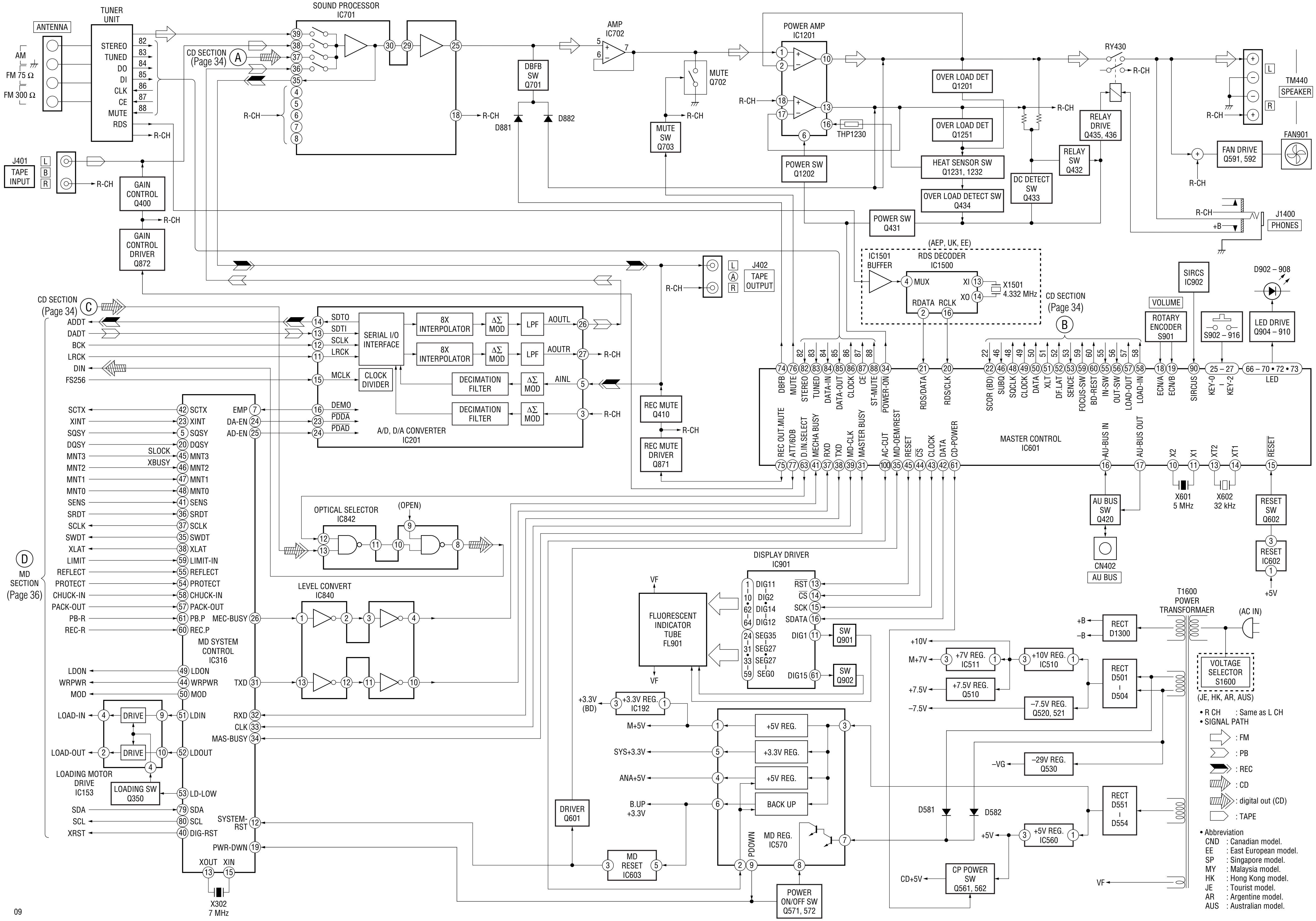
:digital out (CD)

– MD SECTION –



• SIGNAL PATH
: PB (MD)
: REC
: digital out (CD)
HR901 OVER WRITE HEAD
OVER WRITE HEAD DRIVE Q181, 182
OVER WRITE HEAD DRIVE
IC181 (2/4)
IC181 (3/4)
IC181 (1/4)
IC181 (4/4)
DIGITAL SERVO SIGNAL PROCESSOR, DIGITAL SIGNAL PROCESSOR
EFM/ACIRC ENCODER/DECODER, SHOCK-PROOF MEMORY CONTROLLER,
ATRAC ENCODER/DECODER, 2M-BIT DRAM
IC121
OPTICAL PICK-UP BLOCK
(KMS-260A/J1N)
DETECTOR
RF AMP
IC101
RF AGC & EQ
RF AMP
BPF
P-P
IV AMP
PEAK & BOTTOM
ABCD AMP
FOCUS ERROR AMP
AT AMP
E-F BALANCE
CVB
TEMP AMP
TRACKING ERROR AMP
SERIAL ↓ PARALLEL DECODER
VICONV
LASER ON SW Q101
APC Q162, 163
LASER DIODE
HF MODULE
HF MODULE SW IC103, Q102-104
TRACKING COIL
FOCUS COIL
SLED/SPINDLE MOTOR DRIVE
FOCUS/TRACKING COIL DRIVE
IC152
DRIVER
M902 SLED MOTOR
M901 SPINDLE MOTOR
FILTER
PLL
EFM, ACIRC, ENCODER/ DECODER
SHOCK RESISTANT MEMORY CONTROLLER
ATRAC ENCODER/ DECODER
DIGITAL AUDIO I/F
CLOCK GENERATOR
SAMPLING RATE CONVERTER
SUBCODE PROCESSOR
ANALOG MUX
MONITOR CONTROL
A/D CONVERTER
CPU I/F
ADIP DEMODULATOR/ DECODER
APC
SERVO DSP
SPINDLE SERVO
PWM GENERATOR
AUTO SEQUENCER
BUFFER IC401
X101 22 MHz
DRAM IC124
EEP ROM IC171
DETECT SW S681 - 683, S685 - 688
M903 (MD) LOADING MOTOR
SCTX
XINT
DIN
ADDT
DADT
FS256
BCK
LRCK
SQSY
DQSY
MNT3
MNT2
MNT1
MNT0
SENS
SRDT
SCLK
SWDT
XLAT
LDON
WRPWR
MOD
SDA
SCL
LIMIT
REFLECT
PROTECT
CHUCK IN
PACK OUT
PB P
REC P
LOAD-IN
LOAD-OUT
XRST
D MAIN SECTION
(Page 37)
09

– MAIN SECTION –



09

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : Switch with sliding contact indicated by hatched lines shows shorting type.
- : panel designation.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- B+ : B+ Line.
- B– : B– Line.
- : adjustment for repair.

Signal path.

- : FM
- : PB (MD)
- : PB (TAPE)
- : REC
- : CD
- : digital out

- Abbreviation
  - CND : Canadian model.
  - EE : East European model.
  - SP : Singapore model.
  - MY : Malaysia model.
  - JE : Tourist model.
  - HK : Hong Kong model.
  - AR : Argentine model.
  - AUS : Australian model.

For printed wiring boards.

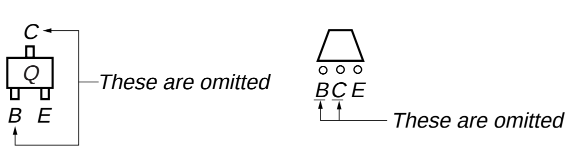
Note:

- : parts extracted from the component side
- ○ : Through hole.
- △ : internal component.
- : Pattern from the side which enables seeing.

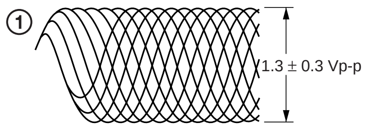
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

- **Indication of transistor**



WAVEFORMS
– CD SECTION –

①


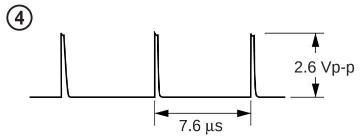
IC101 ㉛ (RFO) (PLAY Mode)
500 mV/DIV, 500 ns/DIV

②

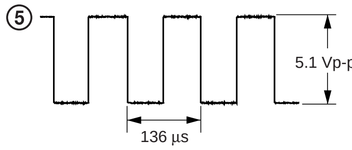

IC101 ㊹ (TEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV

③

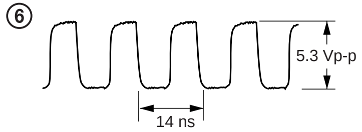

IC101 ② (FEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV

④


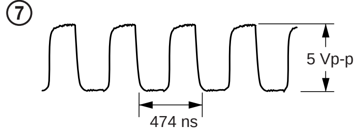
IC103 ③ (MDP) (PALY Mode)

⑤


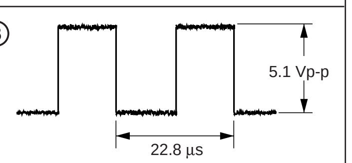
IC103 ㉘ (RFCK)

⑥


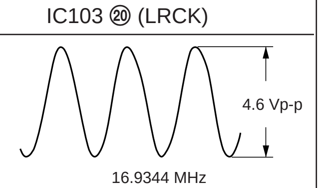
IC103 ㉕ (XPCK)

⑦


IC103 ㉒ (BCLK)

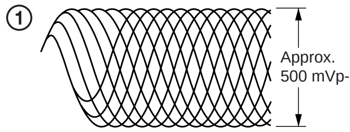
⑧


IC103 ⑳ (LRCK)

⑨


IC104 ⑥ (XTO)

– MD SECTION –

①


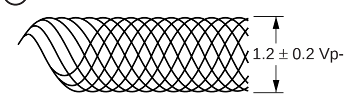
IC501 ①, ② (I.J) (PLAY Mode)

②

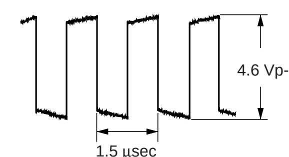

IC101 ④ (A) (PLAY Mode)

③

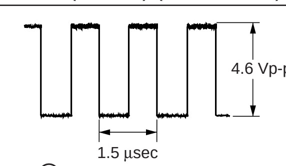

IC101 ⑧, ⑨ (E, F) (PLAY Mode)

④


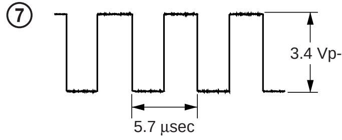
IC101 ㊳ (RF) (PLAY Mode)

⑤


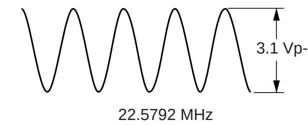
IC152 ㉜ (CAPA–) (PLAY Mode)

⑥


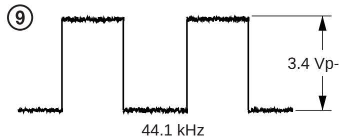
IC152 ㉜ (CAPA+) (PLAY Mode)

⑦


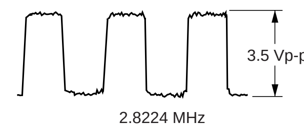
IC121 ⑩ (FS4)

⑧


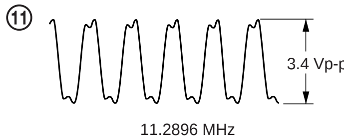
IC121 ⑰ (OSCI)

⑨


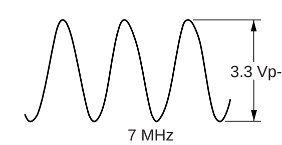
IC121 ㉕ (LRCK)

⑩


IC121 ㉖ (XBCK)

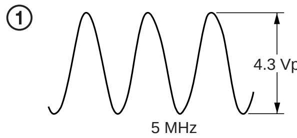
⑪


IC121 ㉗ (FS256)

⑫


IC316 ⑬ (XOUT)

– MAIN SECTION –

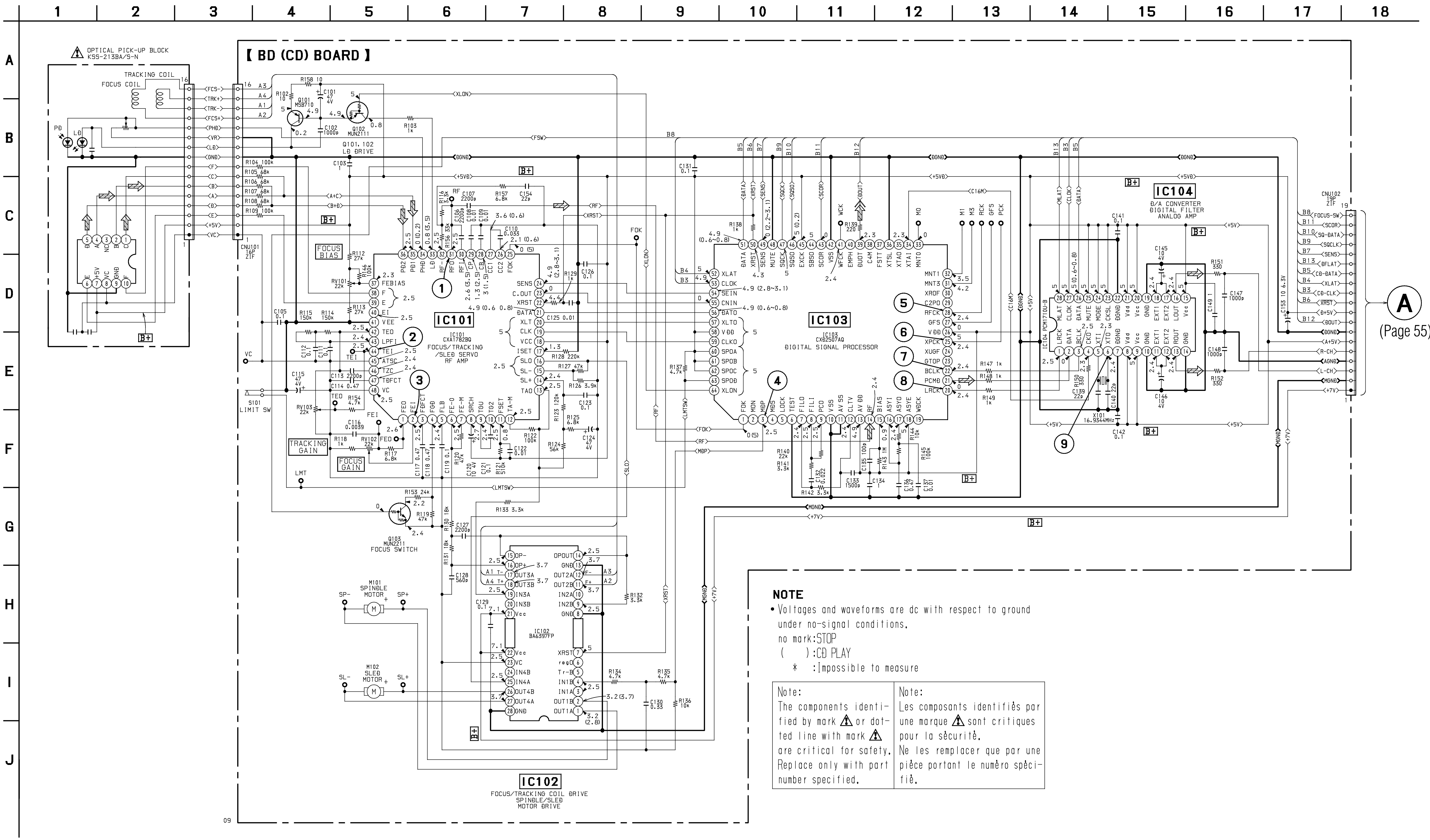
①


IC601 ⑪ (XI)

②


IC601 ⑭ (XI)

7-3. SCHEMATIC DIAGRAM – CD SECTION –
- **See page 39 for Waveforms.**
- **See page 81 for IC Block Diagrams.**



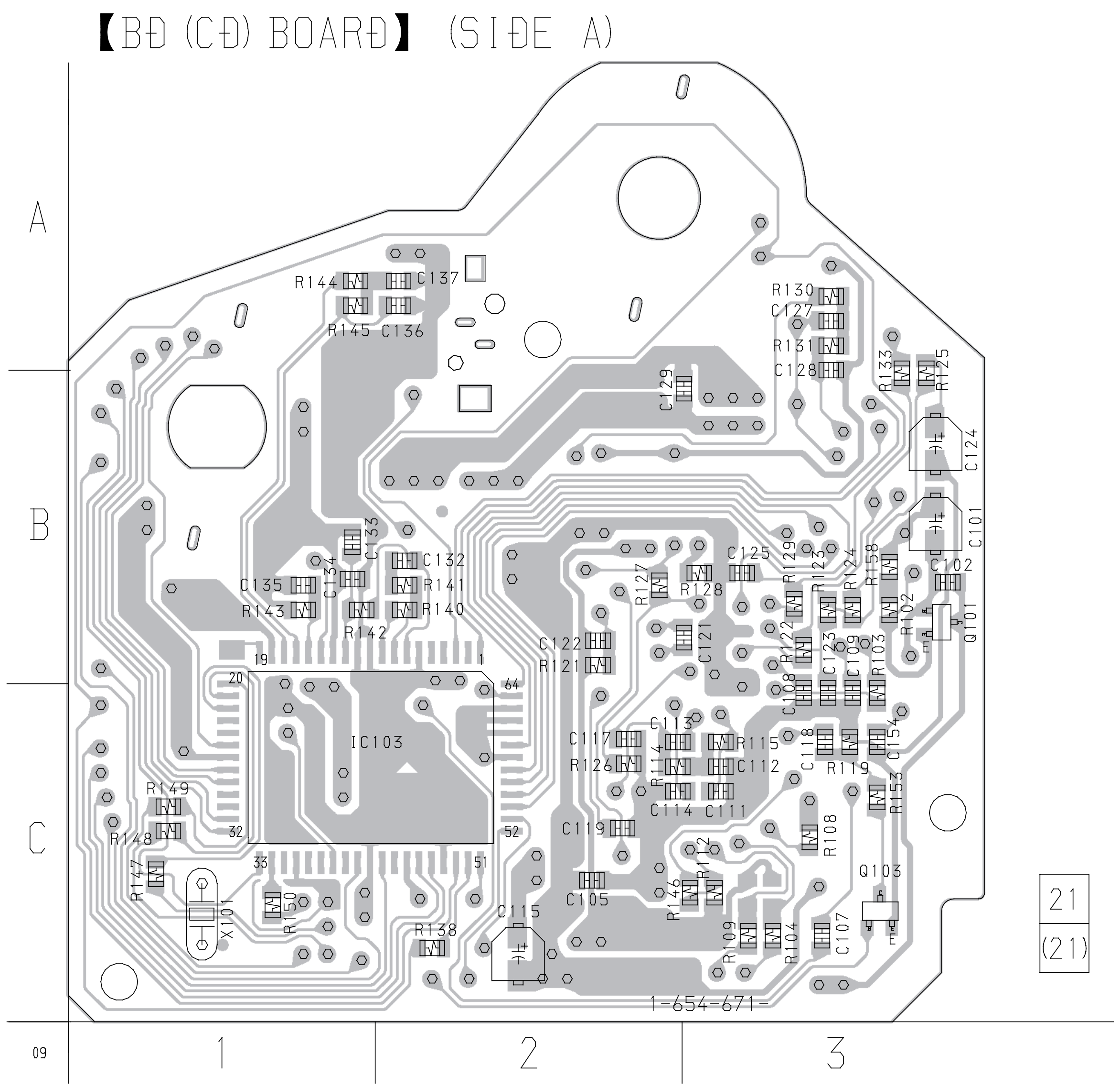
NOTE

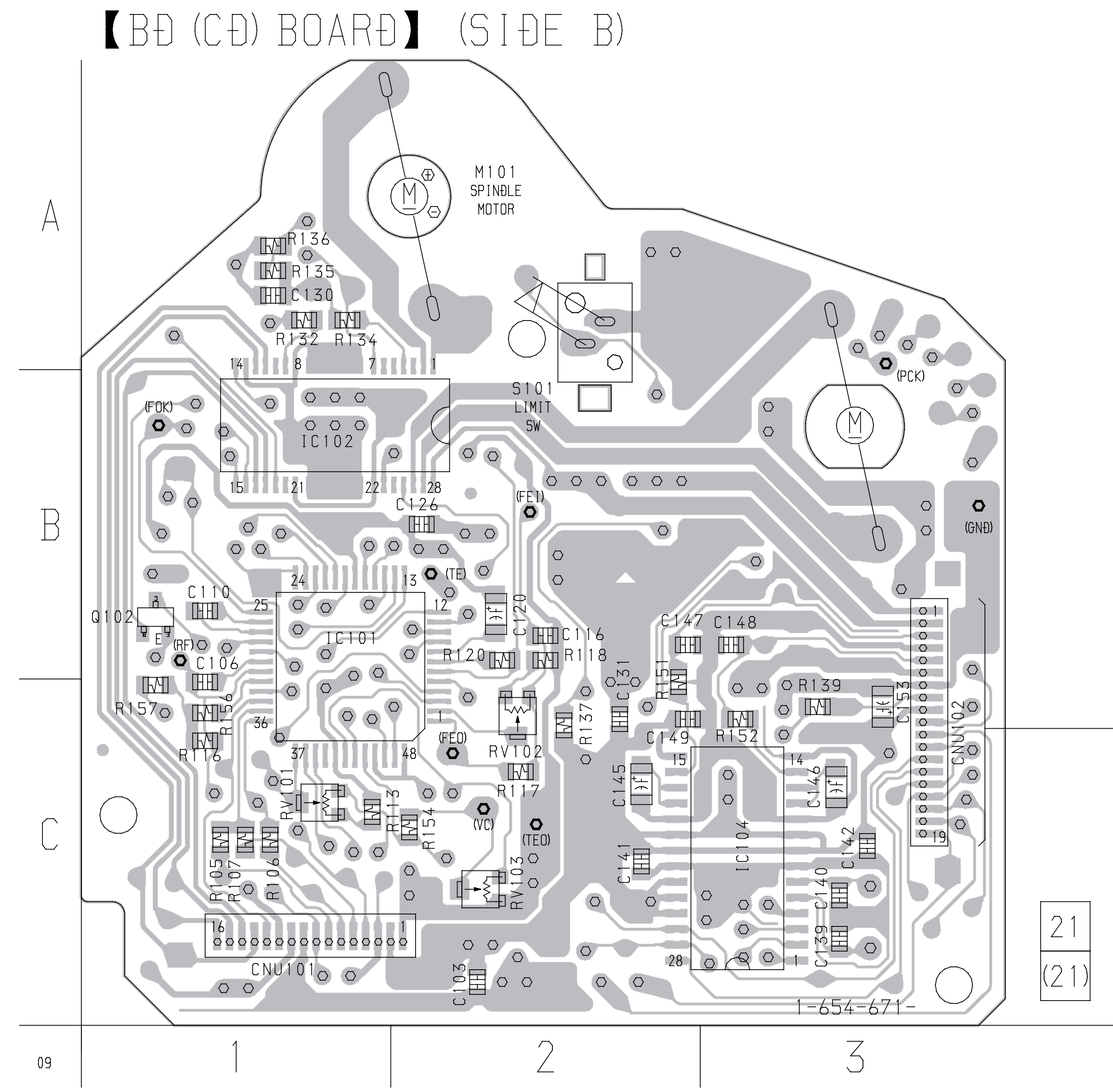
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark: STOP
  - ( ) : CD PLAY
  - * : Impossible to measure

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-4. PRINTED WIRING BOARD – CD SECTION –

• See page 31 for Circuit Boards Location.





(Page 59)

• **Semiconductor Location**

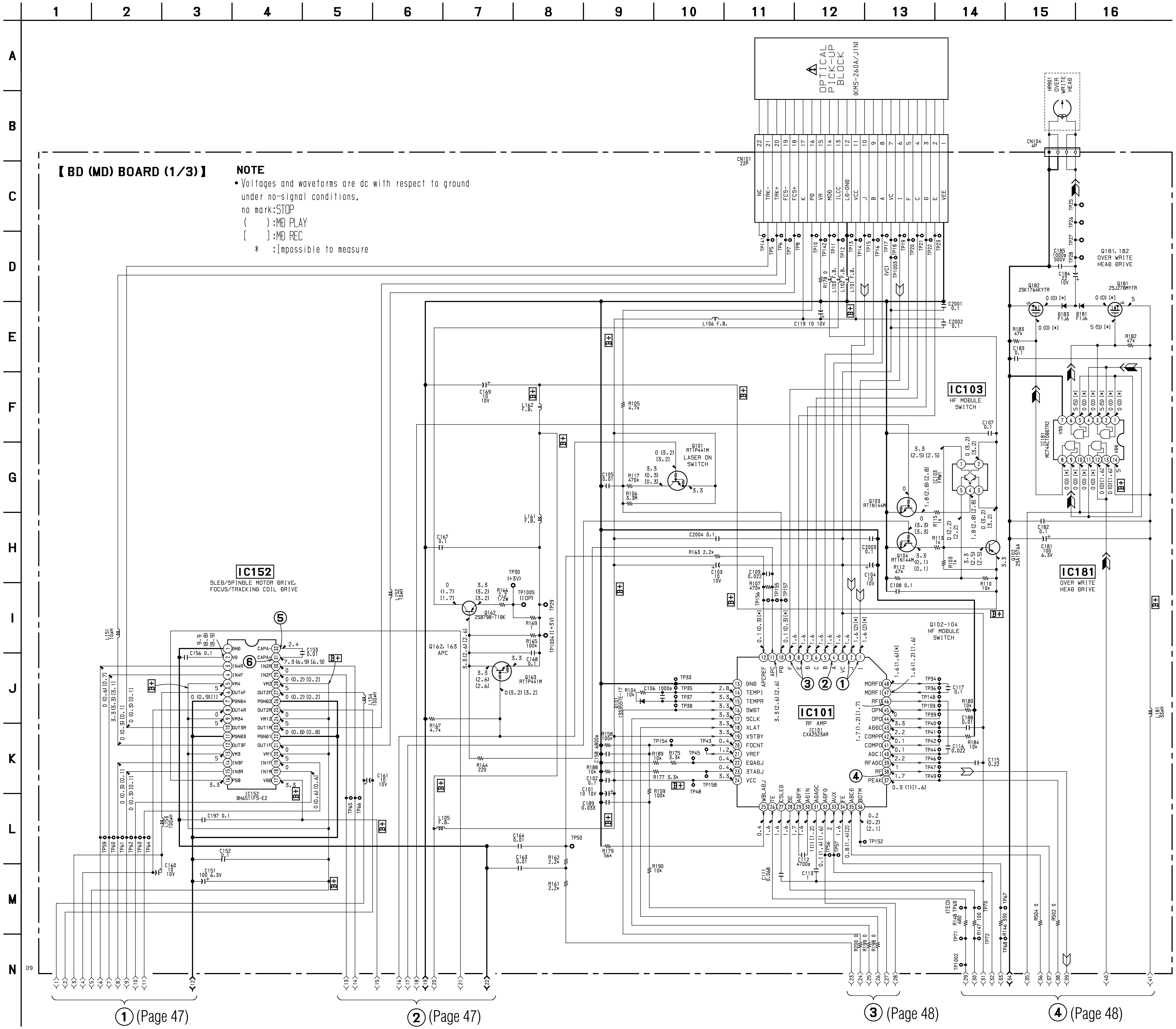
Ref. No.	Location
IC103	C-1
Q101	B-3
Q103	C-3

• **Semiconductor Location**

Ref. No.	Location
IC101	B-1
IC102	B-1
IC104	C-3
Q102	B-1

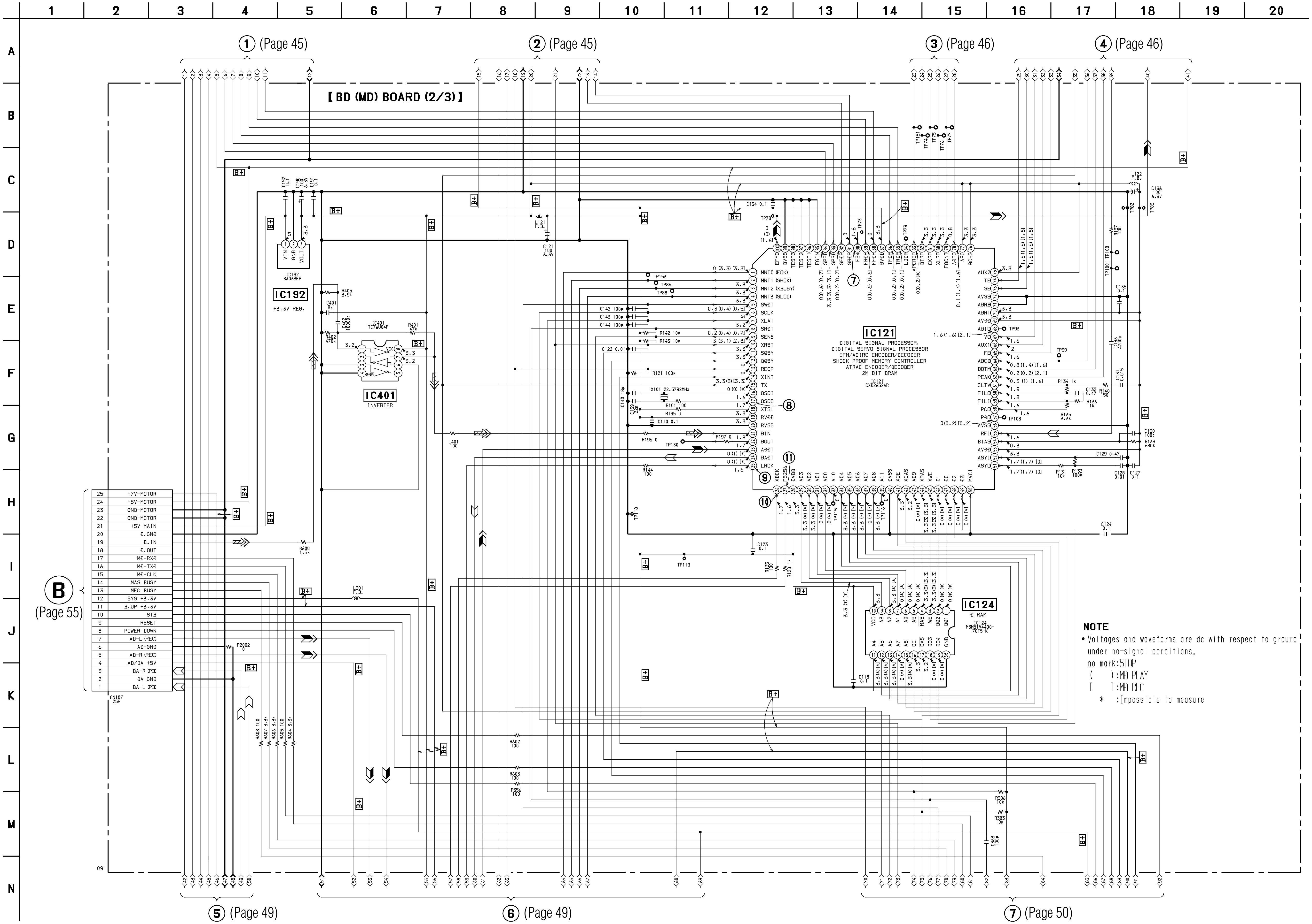
7-5. SCHEMATIC DIAGRAM – MD (1/3) SECTION –

• See page 40 for Waveforms.
• See page 51 for Printed Wiring Board.
• See page 84 for IC Block Diagrams.
• See page 88 for IC Pin Functions.



7-6. SCHEMATIC DIAGRAM – MD (2/3) SECTION –

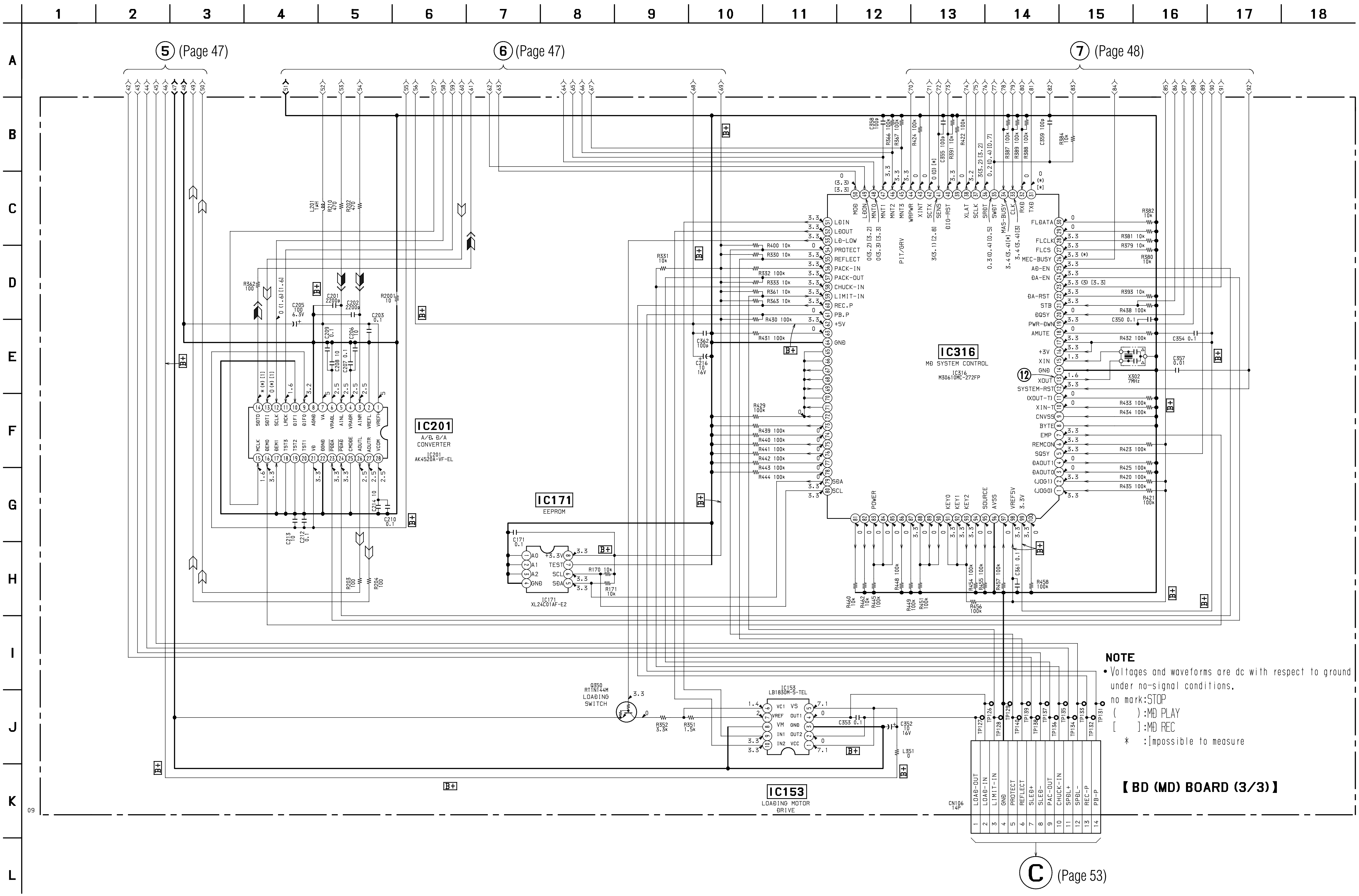
- See page 40 for Waveforms.
- See page 51 for Printed Wiring Board.
- See page 85 for IC Block Diagrams.
- See page 89 for IC Pin Functions.



NOTE
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP
  ( ) :MD PLAY
  [ ] :MD REC
  * :Impossible to measure

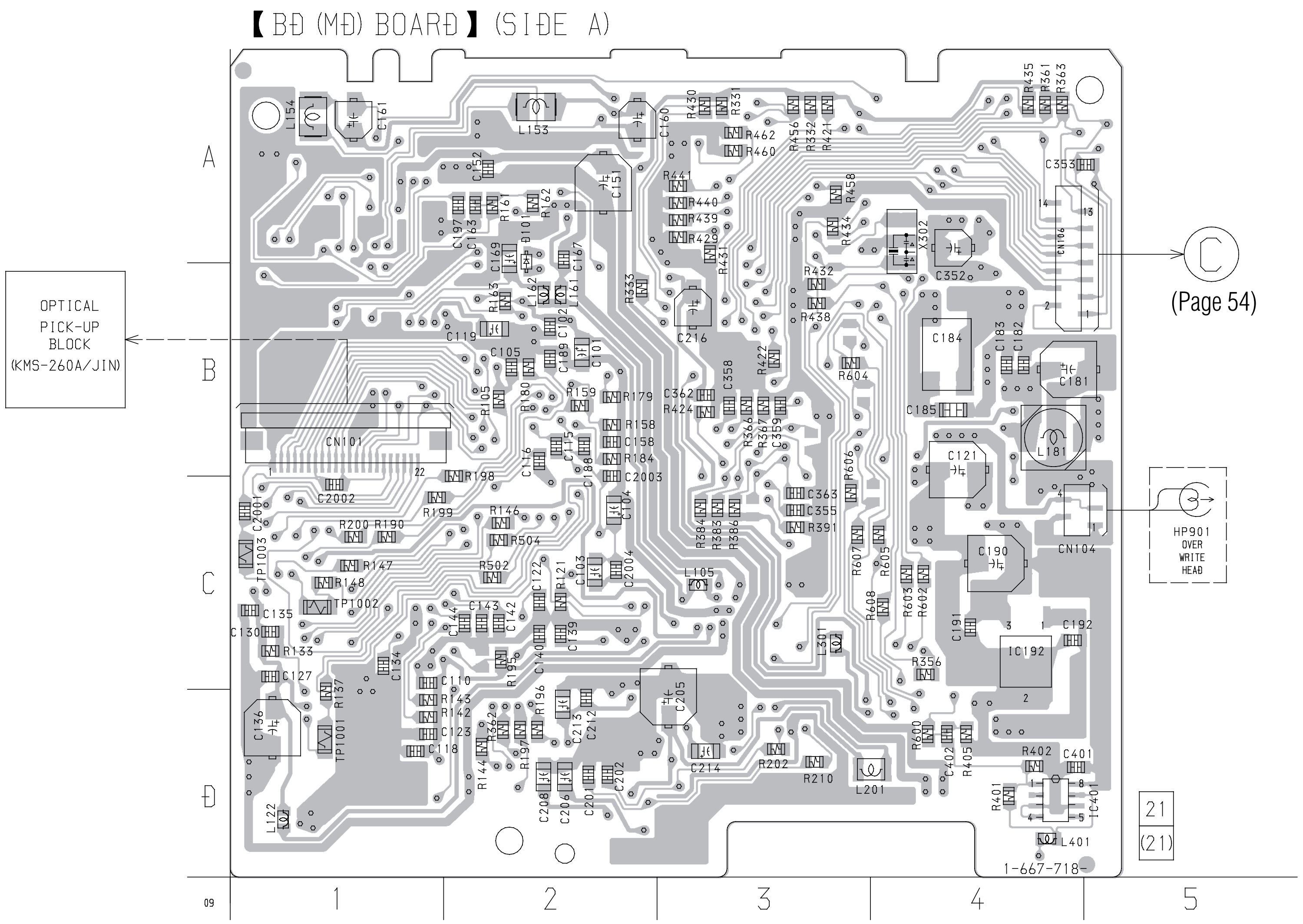
7-7. SCHEMATIC DIAGRAM – MD (3/3) SECTION –

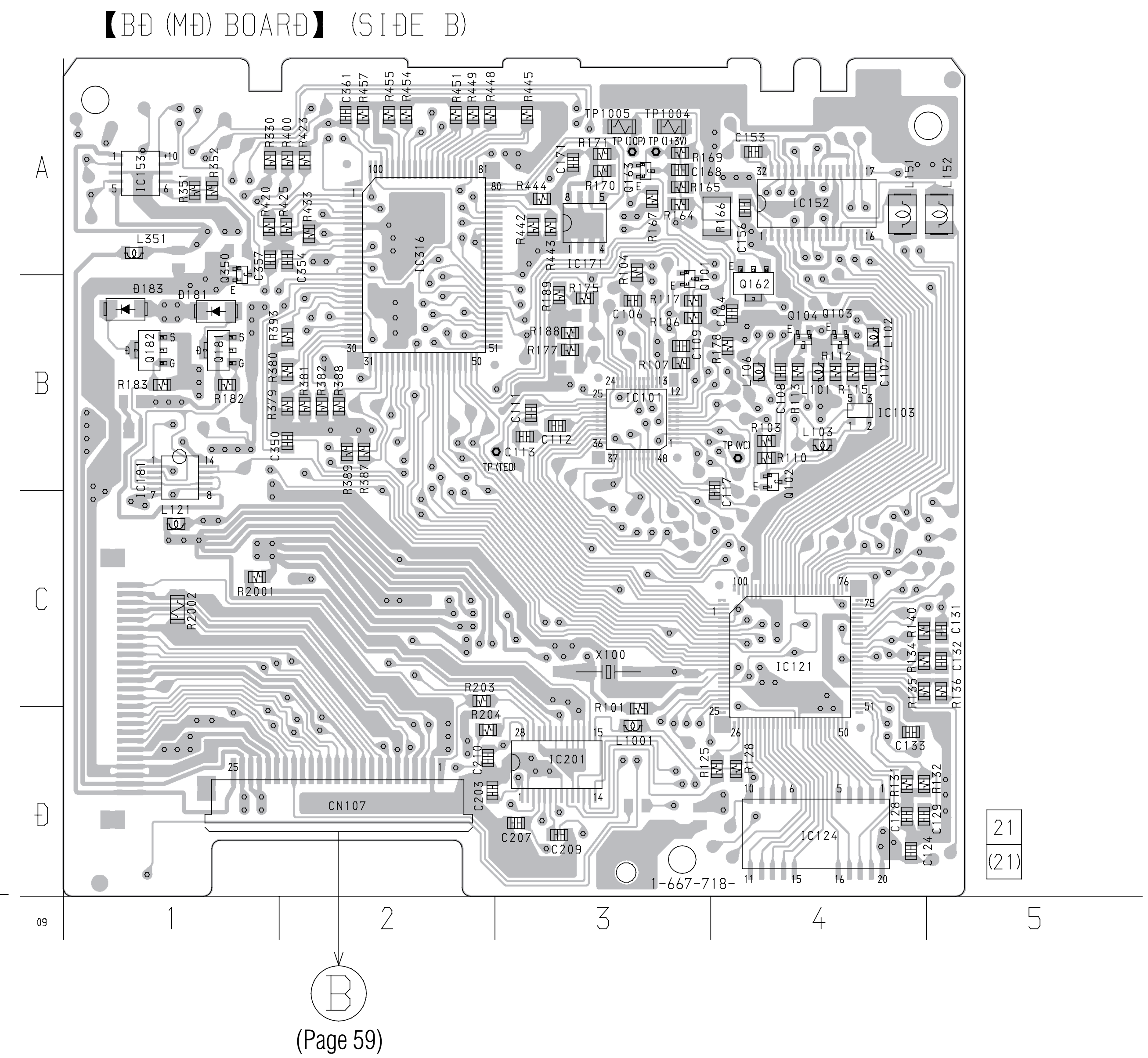
- **See page 40 for Waveforms.**
- **See page 83 for IC Block Diagrams.**
- **See page 92 for IC Pin Functions.**



7-8. PRINTED WIRING BOARD – MD SECTION –

• See page 31 for Circuit Boards Location.





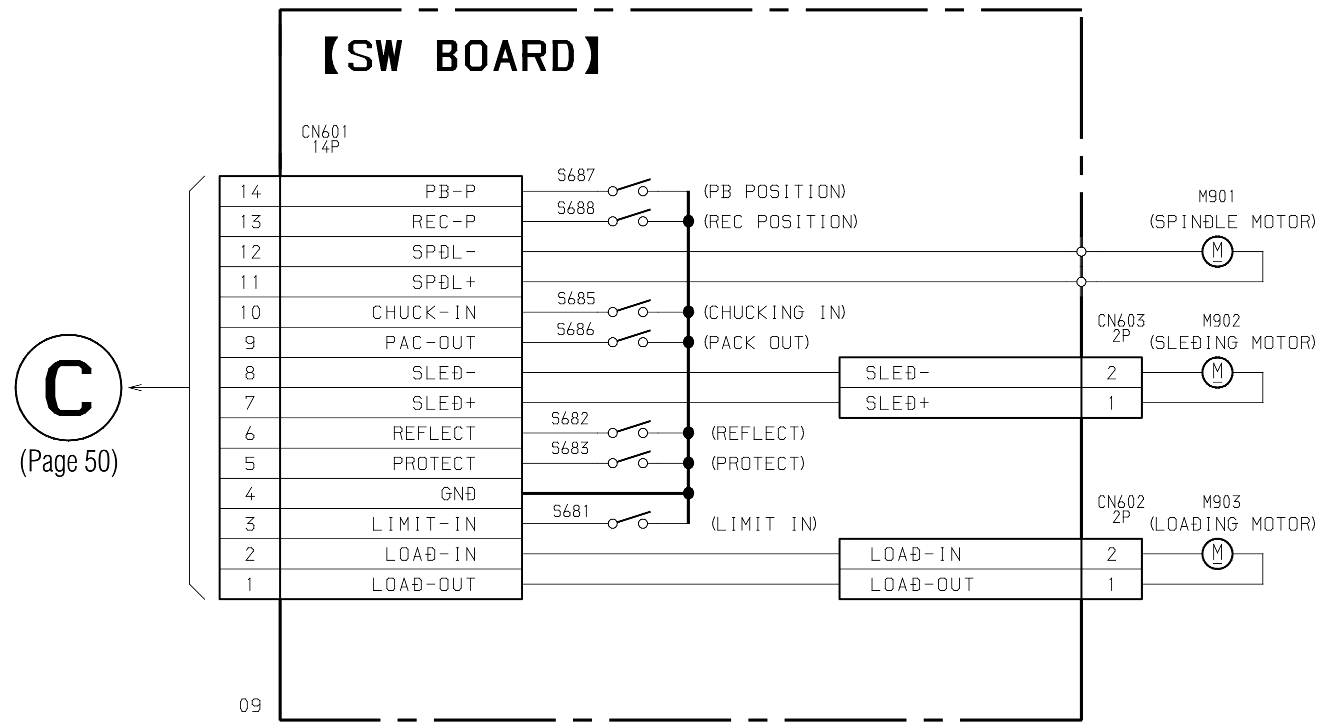
• Semiconductor Location

Ref. No.	Location
D101	A-2
IC192	C-4
IC401	D-4

• Semiconductor Location

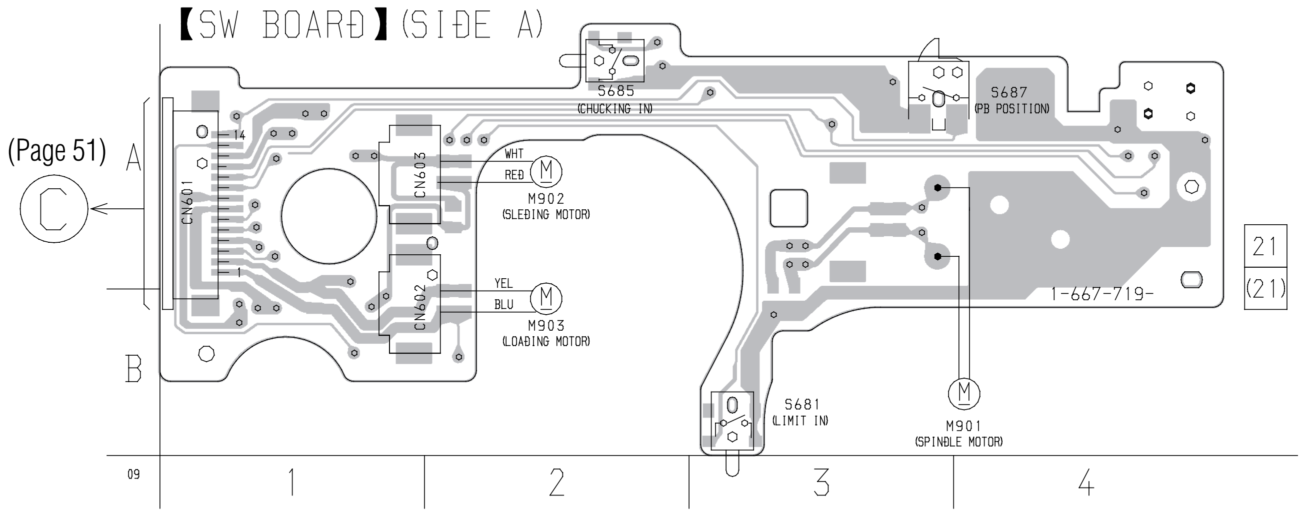
Ref. No.	Location	Ref. No.	Location
D181	B-1	IC316	A-2
D183	B-1	Q101	B-3
IC101	B-3	Q102	B-4
IC103	B-4	Q103	B-4
IC121	C-4	Q104	B-4
IC124	D-4	Q162	B-4
IC152	A-4	Q163	A-3
IC153	A-1	Q181	B-1
IC171	A-3	Q182	B-1
IC181	B-1	Q350	A-1
IC201	D-3		

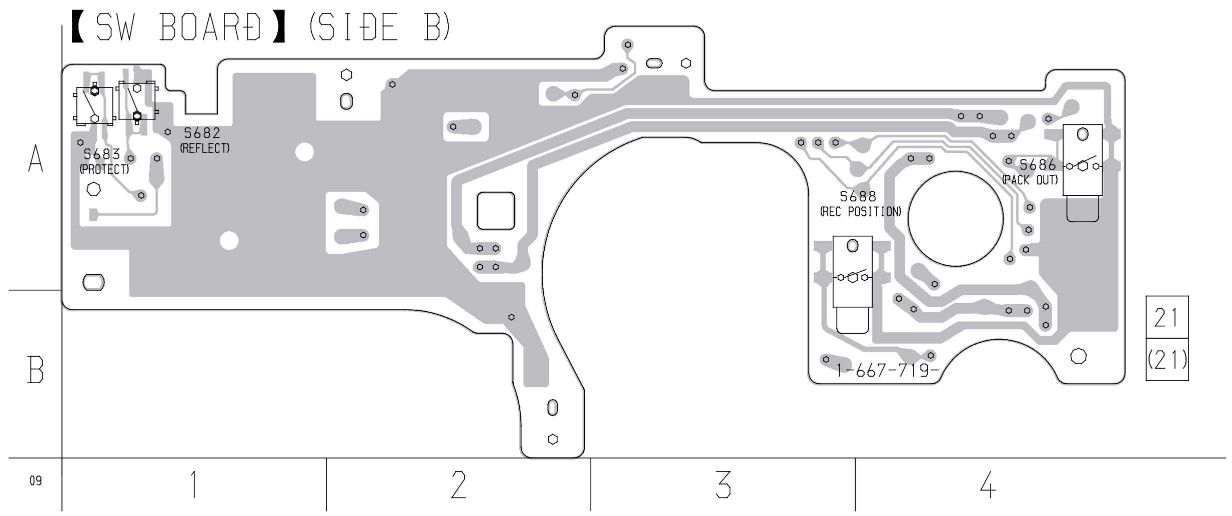
7-9. SCHEMATIC DIAGRAM – MD SWITCH SECTION –



7-10. PRINTED WIRING BOARD – MD SWITCH SECTION –

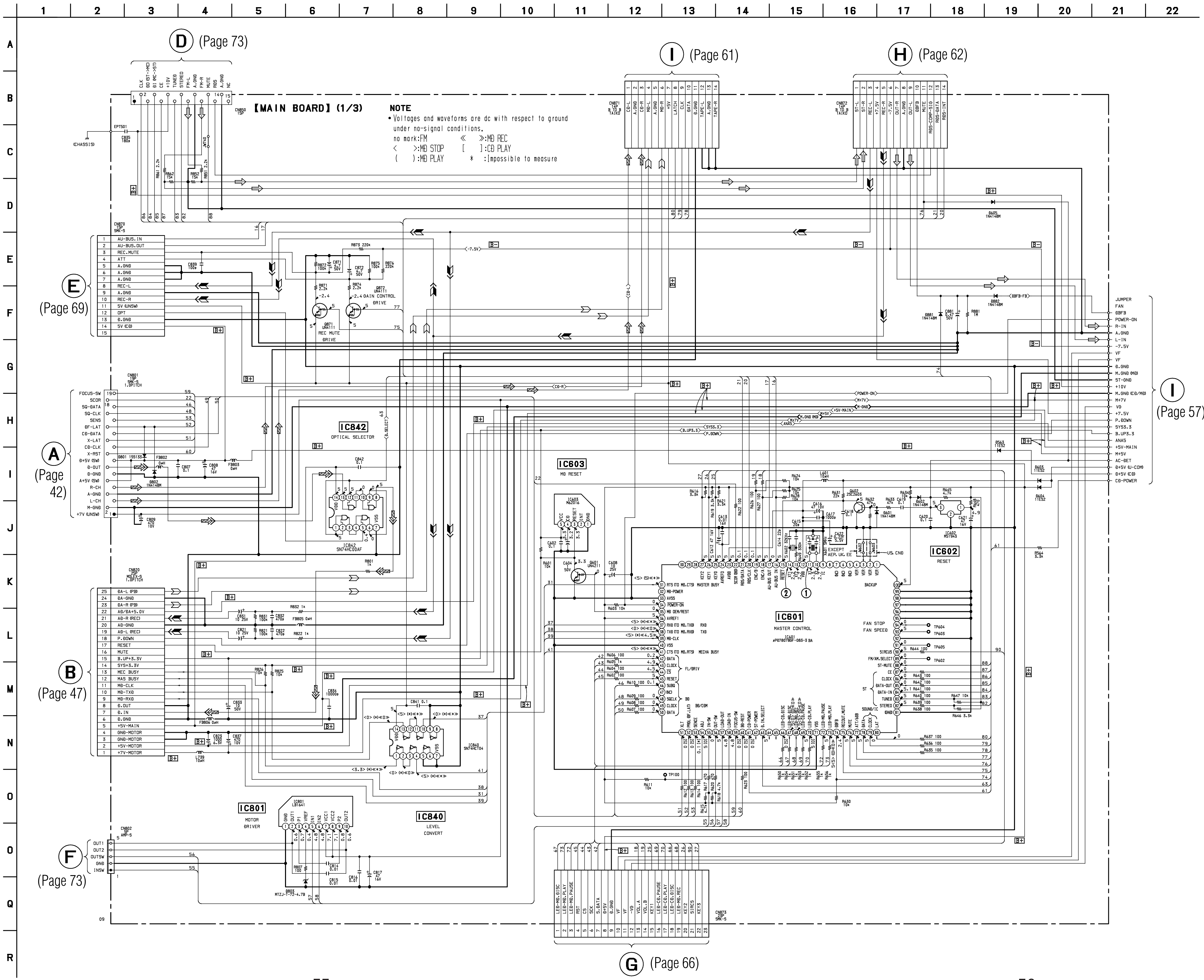
• See page 31 for Circuit Boards Location.





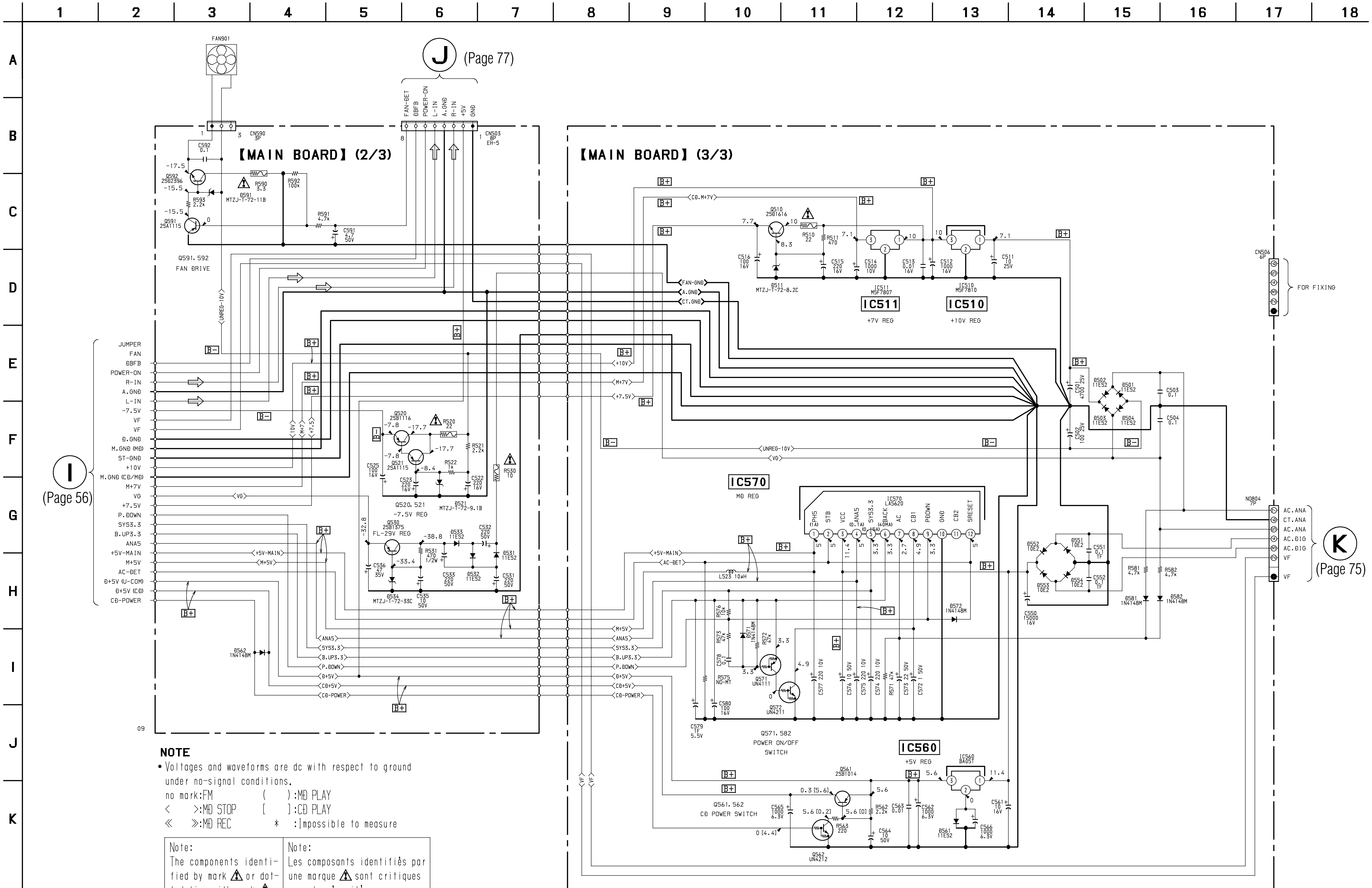
7-11. SCHEMATIC DIAGRAM – MAIN (1/3) SECTION –

• See page 40 for Waveforms.
• See page 59 for Printed Wiring Board.
• See page 86 for IC Block Diagrams.
• See page 94 for IC Pin Functions.



7-12. SCHEMATIC DIAGRAM – MAIN (2/3), (3/3) SECTION –

• See page 86 for IC Block Diagrams.



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.

no mark:FM ( ):MD PLAY

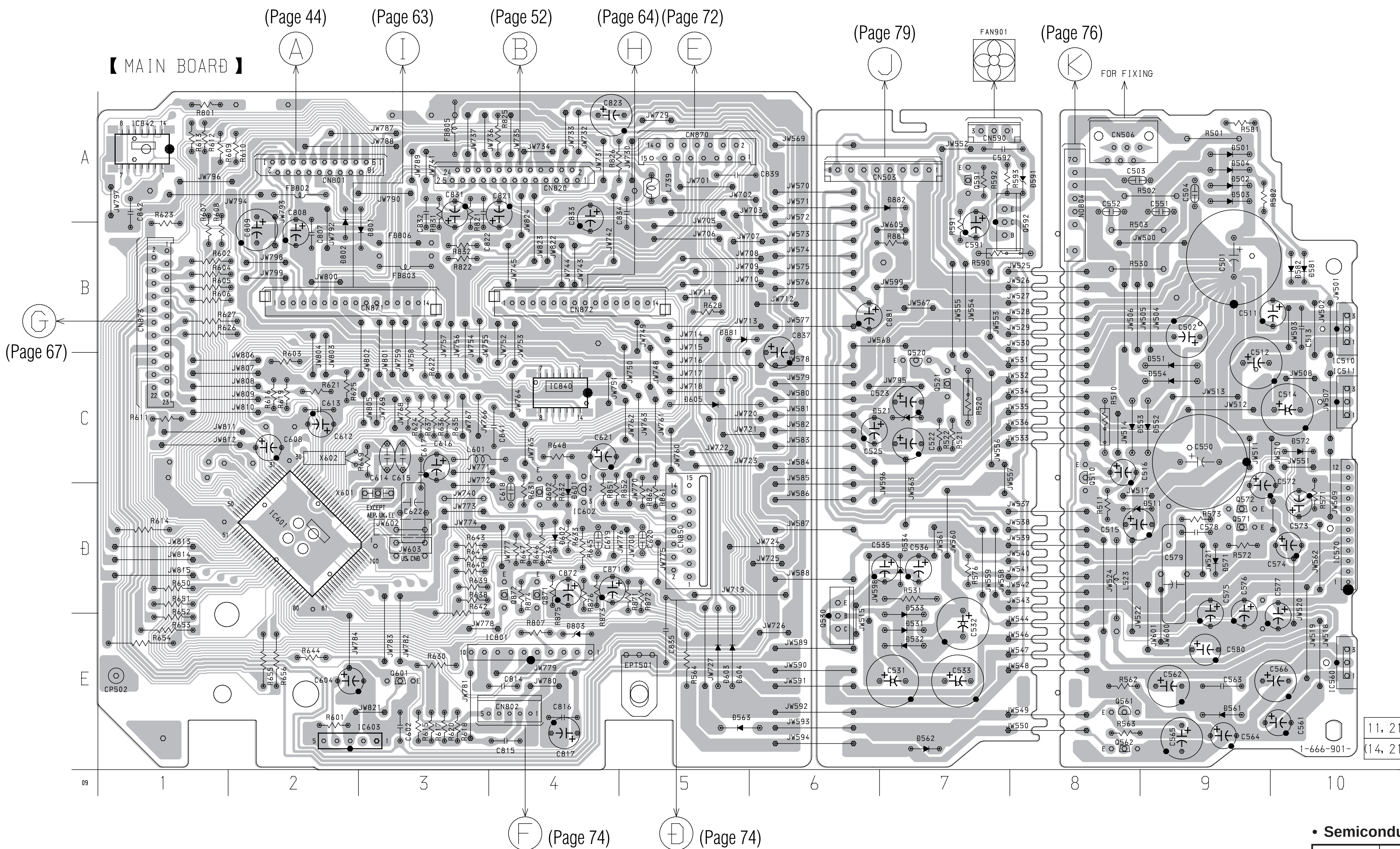
< >:MD STOP [ ]:CD PLAY

≪ ≫:MD REC * :Impossible to measure

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-13. PRINTED WIRING BOARD – MAIN SECTION –

• See page 31 for Circuit Boards Location.

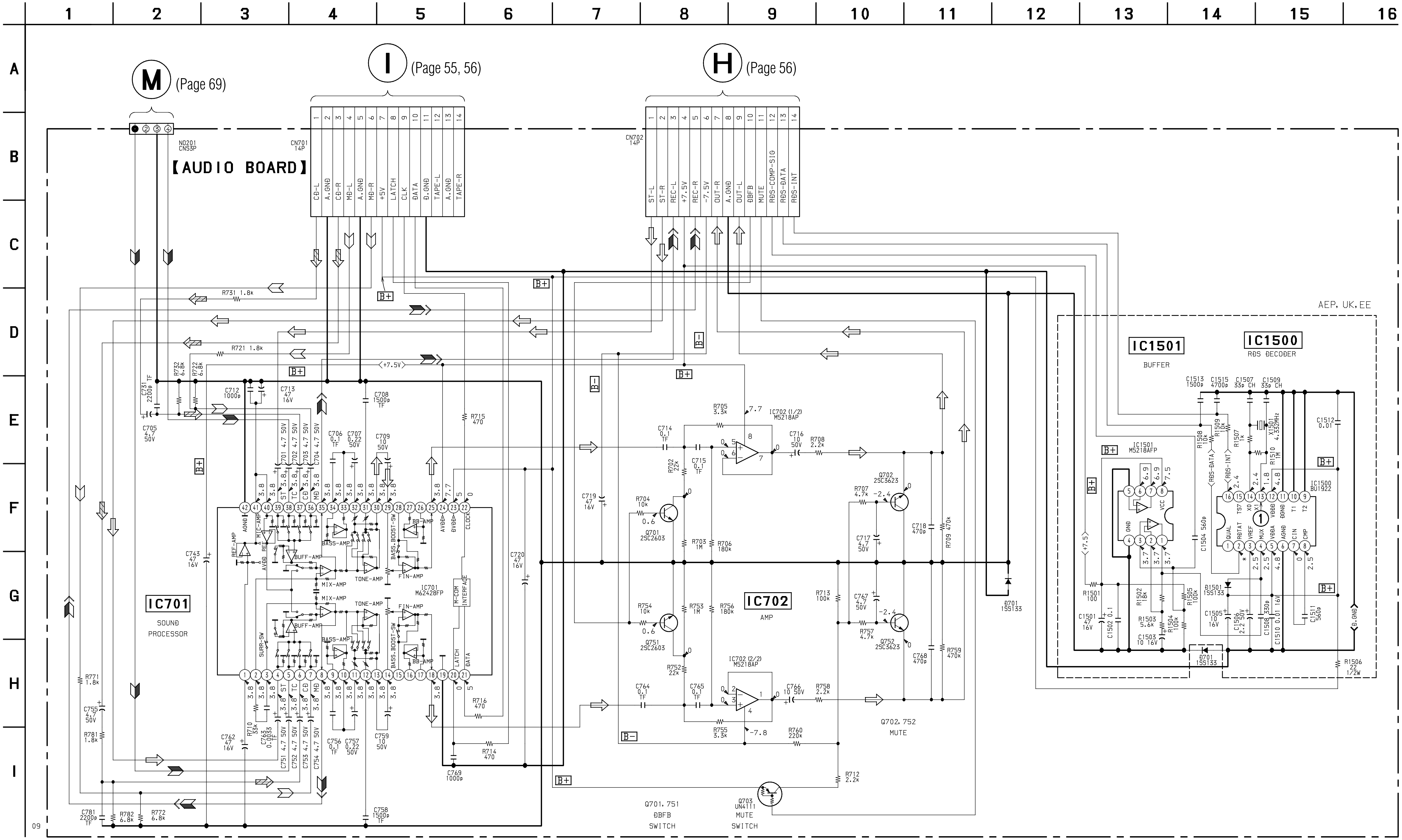


• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D501	A-9	D581	B-10	IC603	E-3
D502	A-9	D582	B-10	IC801	E-4
D503	A-9	D591	A-8	IC840	C-4
D504	A-9	D601	D-4	IC842	A-1
D511	D-9	D602	D-4		
D521	C-7	D603	E-5	Q510	C-8
D531	E-7	D604	E-5	Q520	C-7
D532	E-7	D605	C-5	Q521	C-7
D533	D-7	D801	A-3	Q530	E-6
D534	D-7	D802	B-2	Q561	E-8
D551	C-9	D803	D-4	Q562	E-8
D552	C-9	D881	B-5	Q571	D-9
D553	C-9	D882	A-7	Q572	D-9
D554	C-9			Q591	A-7
D561	E-9	IC510	C-10	Q592	A-8
D562	E-7	IC511	C-10	Q601	E-3
D563	E-5	IC560	E-10	Q602	D-4
D571	D-9	IC601	D-2	Q871	D-4
D572	C-10	IC602	D-4	Q872	D-4

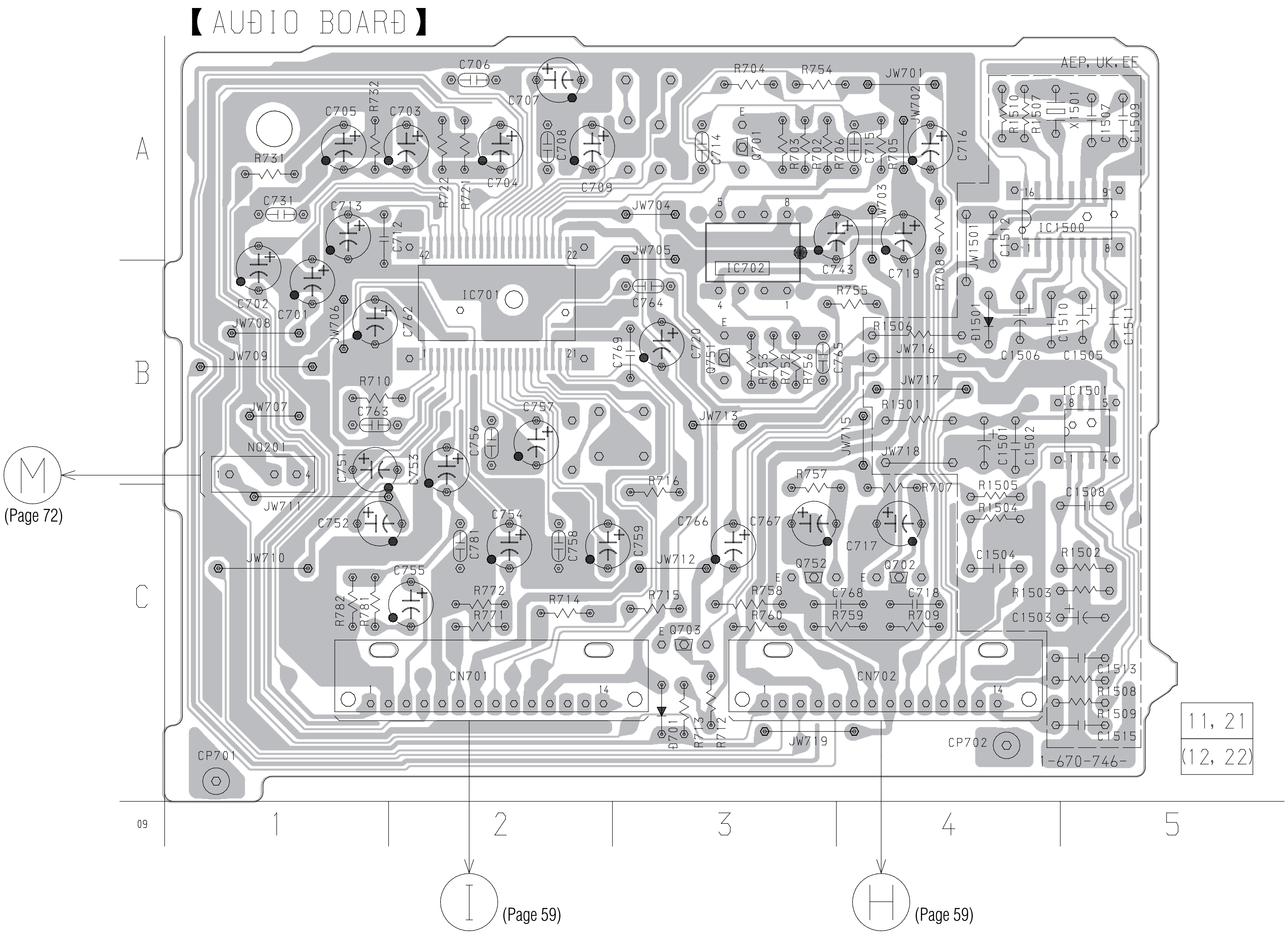
7-14. SCHEMATIC DIAGRAM – AUDIO SECTION –

• See page 87 for IC Block Diagrams.



7-15. PRINTED WIRING BOARD – AUDIO SECTION –

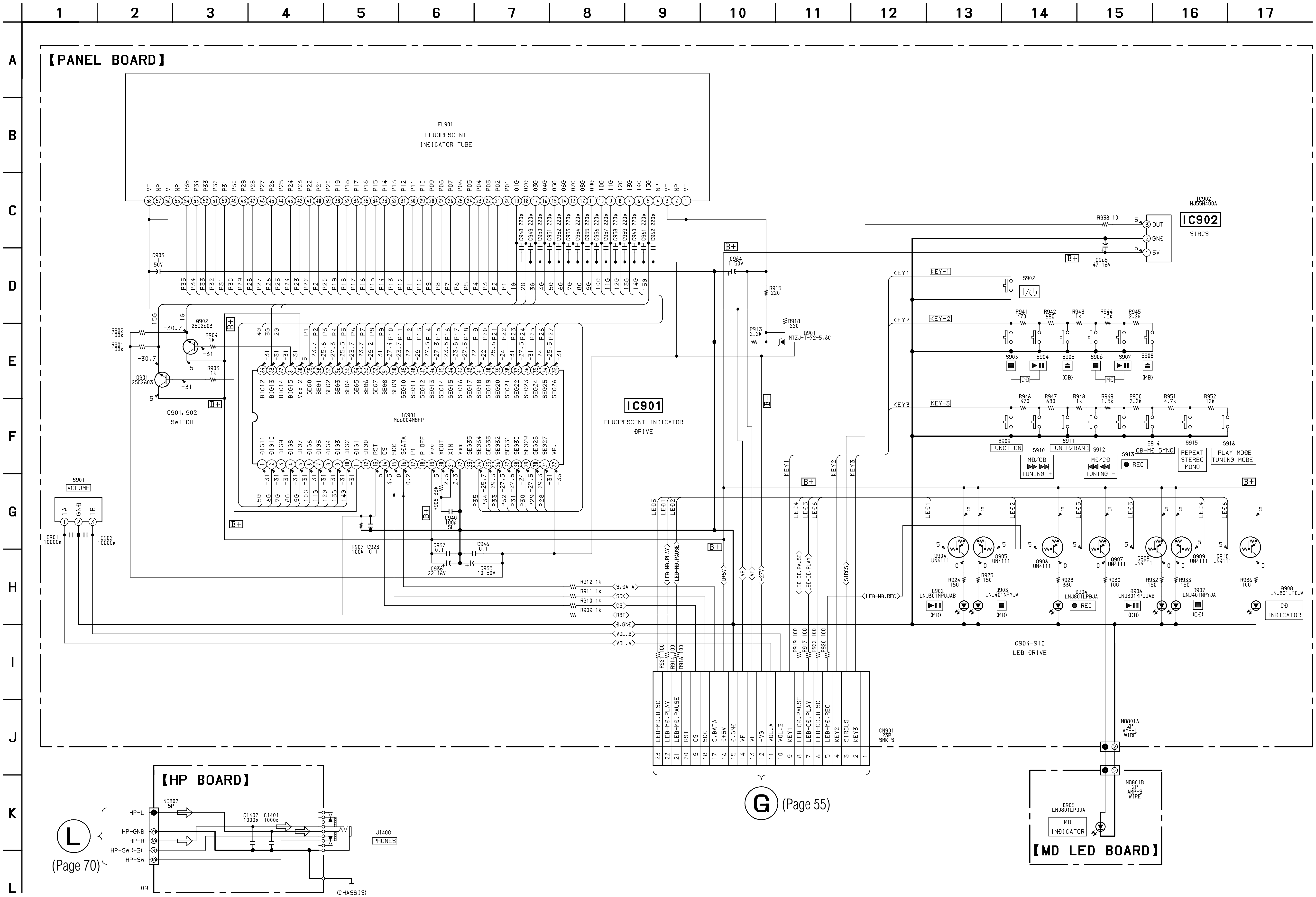
• See page 31 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location
D701	C-3
D1501	B-4
IC701	B-2
IC702	B-3
IC1500	A-4
IC1501	B-5
Q701	A-3
Q702	C-4
Q703	C-3
Q751	B-3
Q752	C-3

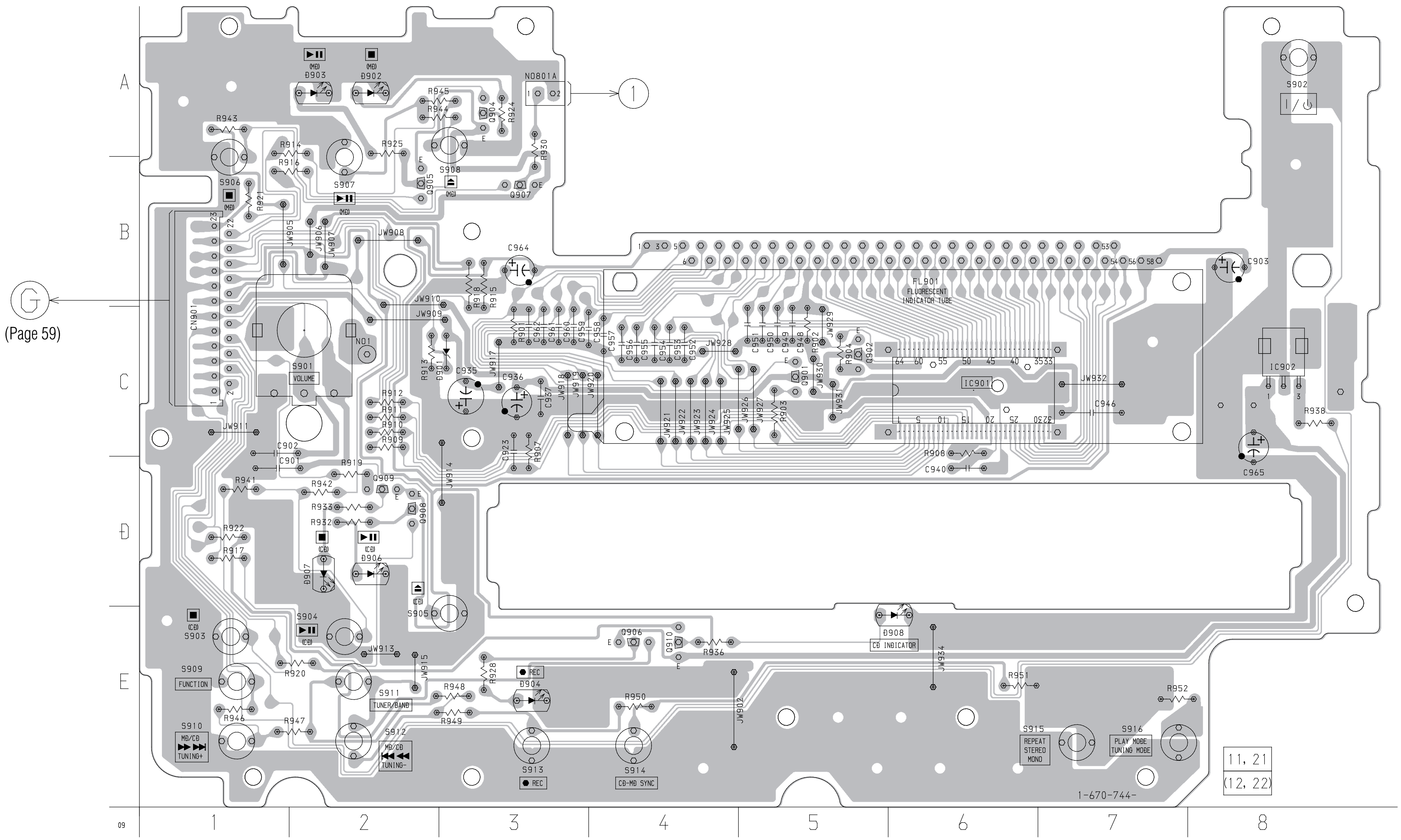
7-16. SCHEMATIC DIAGRAM – PANEL SECTION –



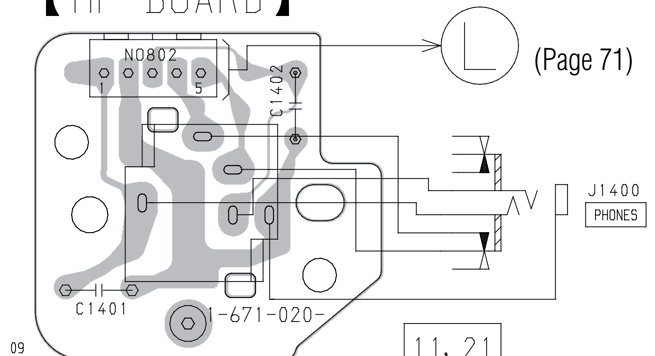
7-17. PRINTED WIRING BOARD – PANEL SECTION –

• See page 31 for Circuit Boards Location.

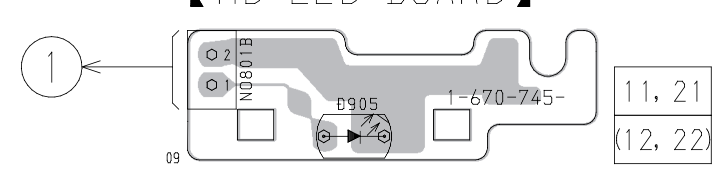
【PANEL BOARD】



【HP BOARD】



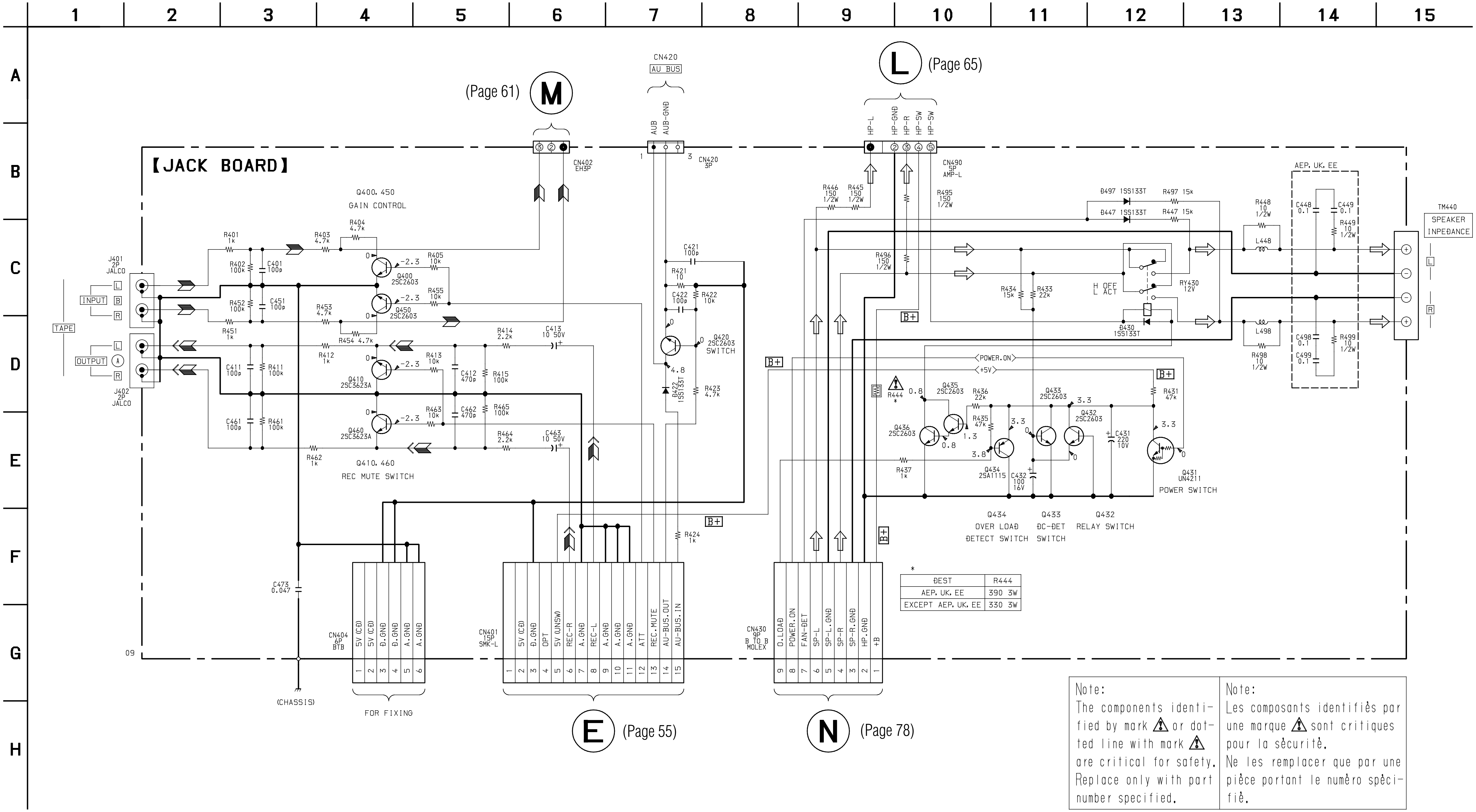
【MD LED BOARD】



• Semiconductor Location

Ref. No.	Location
D901	C-3
D902	A-2
D903	A-2
D904	E-3
D906	D-2
D907	D-2
D908	E-6
IC901	C-6
IC902	C-8
Q901	C-5
Q902	C-5
Q904	A-3
Q905	B-2
Q906	E-4
Q907	B-3
Q908	D-2
Q909	D-2
Q910	E-4

7-18. SCHEMATIC DIAGRAM – JACK SECTION –

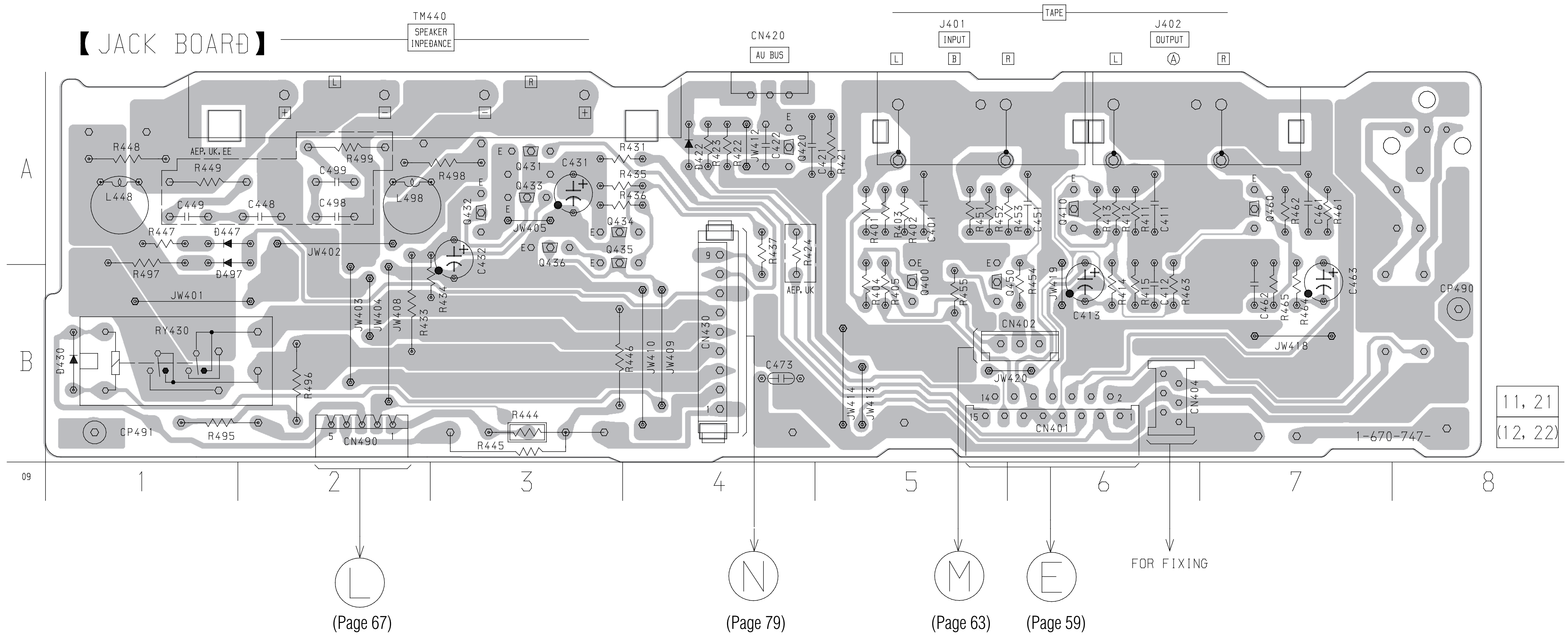


DEST	R444
AEP, UK, EE	390 3W
EXCEPT AEP, UK, EE	330 3W

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-19. PRINTED WIRING BOARD – JACK SECTION –

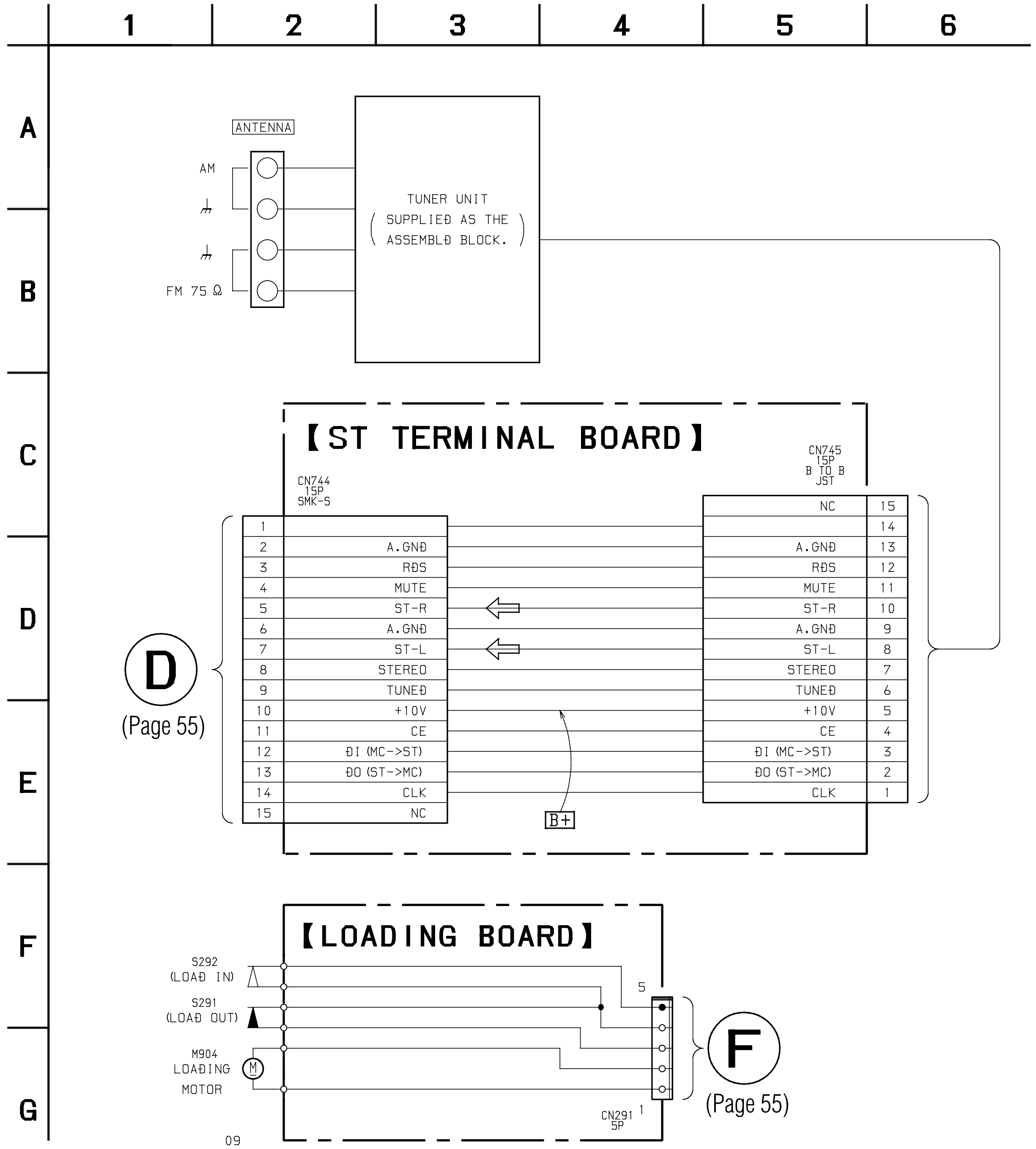
• See page 31 for Circuit Boards Location.



• Semiconductor Location

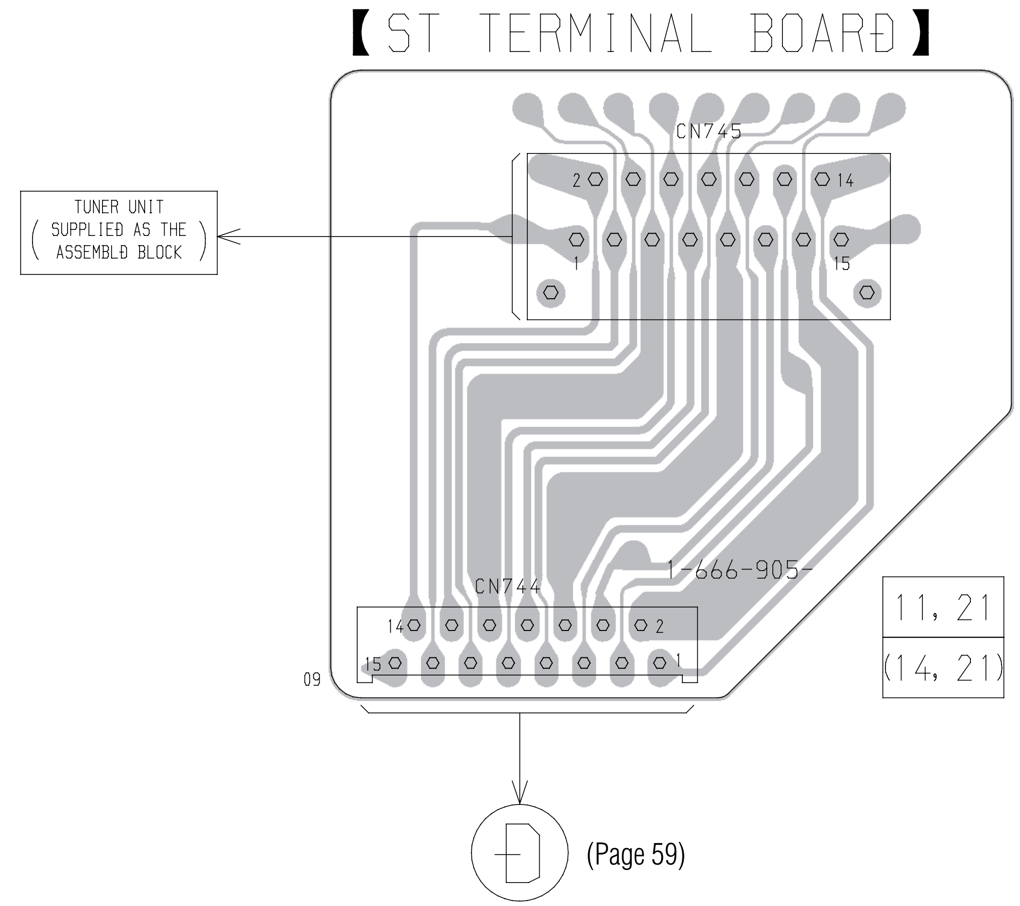
Ref. No.	Location
D422	A-4
D430	B-1
D447	A-1
D497	A-1
IC470	A-8
Q400	B-5
Q410	A-6
Q420	A-4
Q431	A-3
Q432	A-3
Q433	A-3
Q434	A-3
Q435	A-3
Q436	A-3
Q450	B-6
Q460	A-7

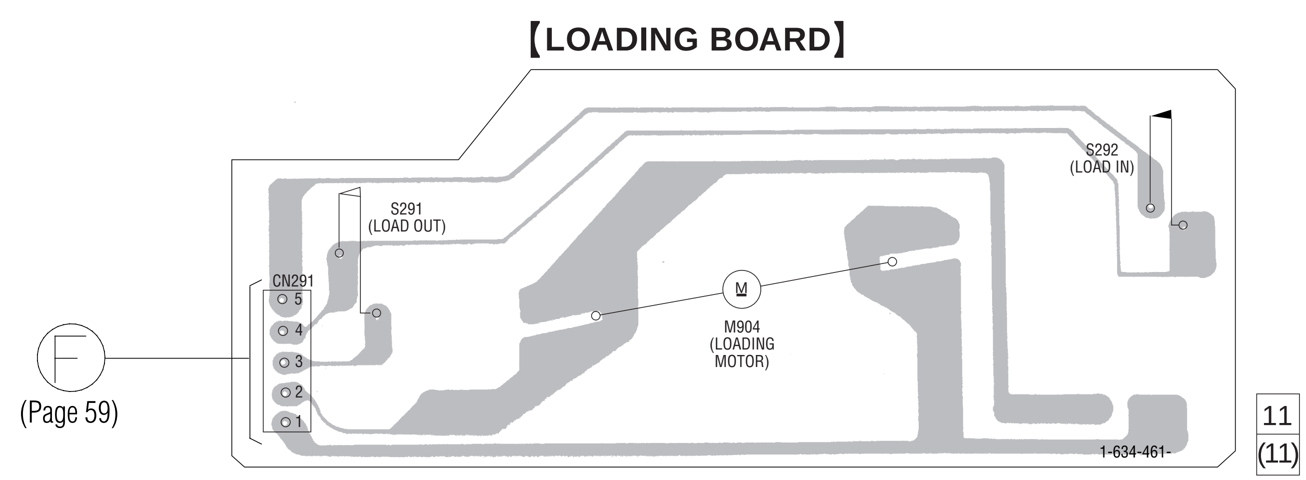
7-20. SCHEMATIC DIAGRAM – ST TERMINAL/LOADING SECTION –



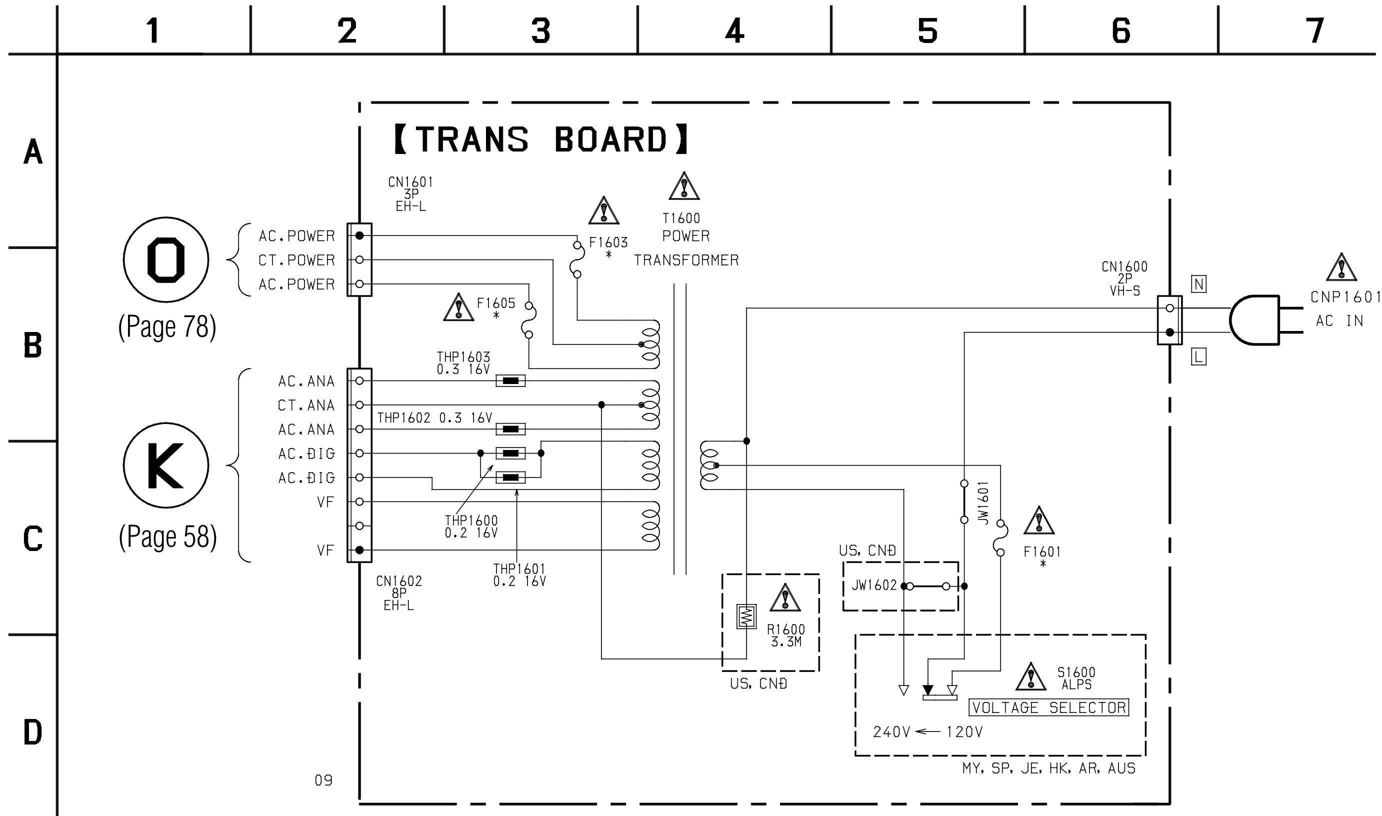
7-21. PRINTED WIRING BOARD – ST TERMINAL/LOADING SECTION –

• See page 31 for Circuit Boards Location.





7-22. SCHEMATIC DIAGRAM – TRANS SECTION –

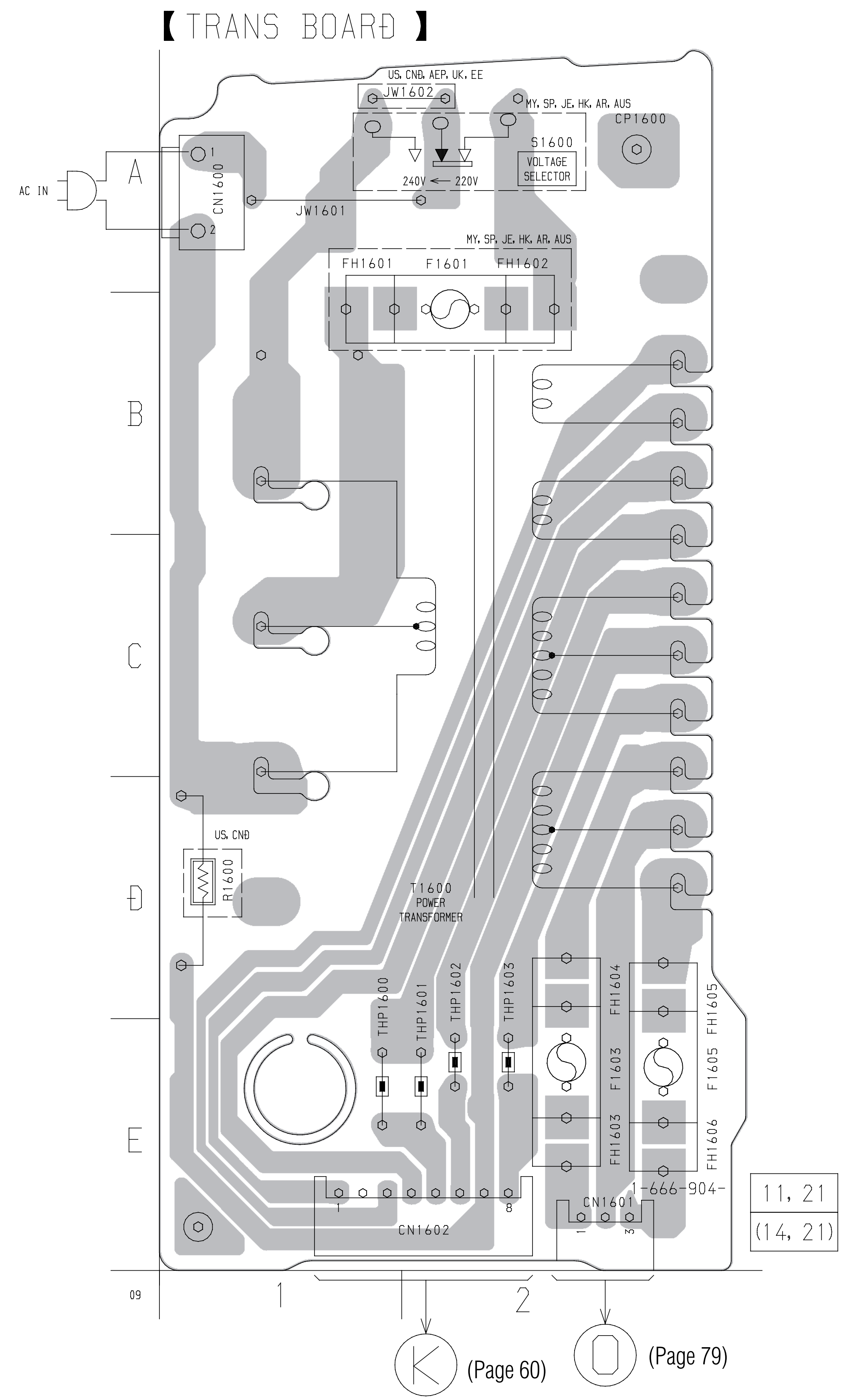


*

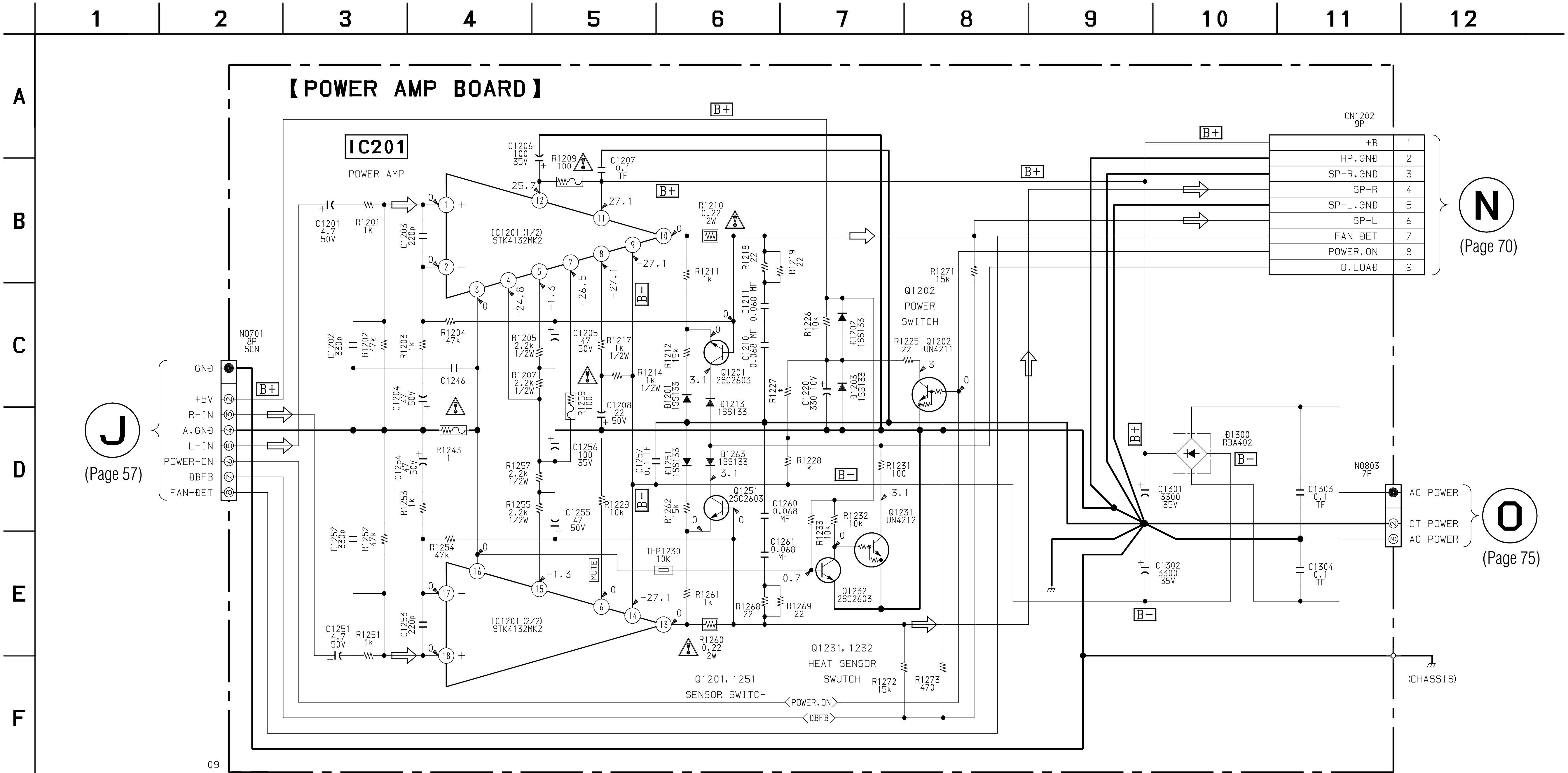
DEST	F1601	F1603	F1605
AEP, UK, EE	NONE	T4AL/250V	T4AL/250V
MY, SP, JE, HK, AR, AUS	T2AL/250V	T4AL/250V	T4AL/250V
US, CND	NONE	4A/125V	4A/125V

7-23. PRINTED WIRING BOARD – TRANS SECTION –

• See page 31 for Circuit Boards Location.



7-24. SCHEMATIC DIAGRAM – POWER AMP SECTION –

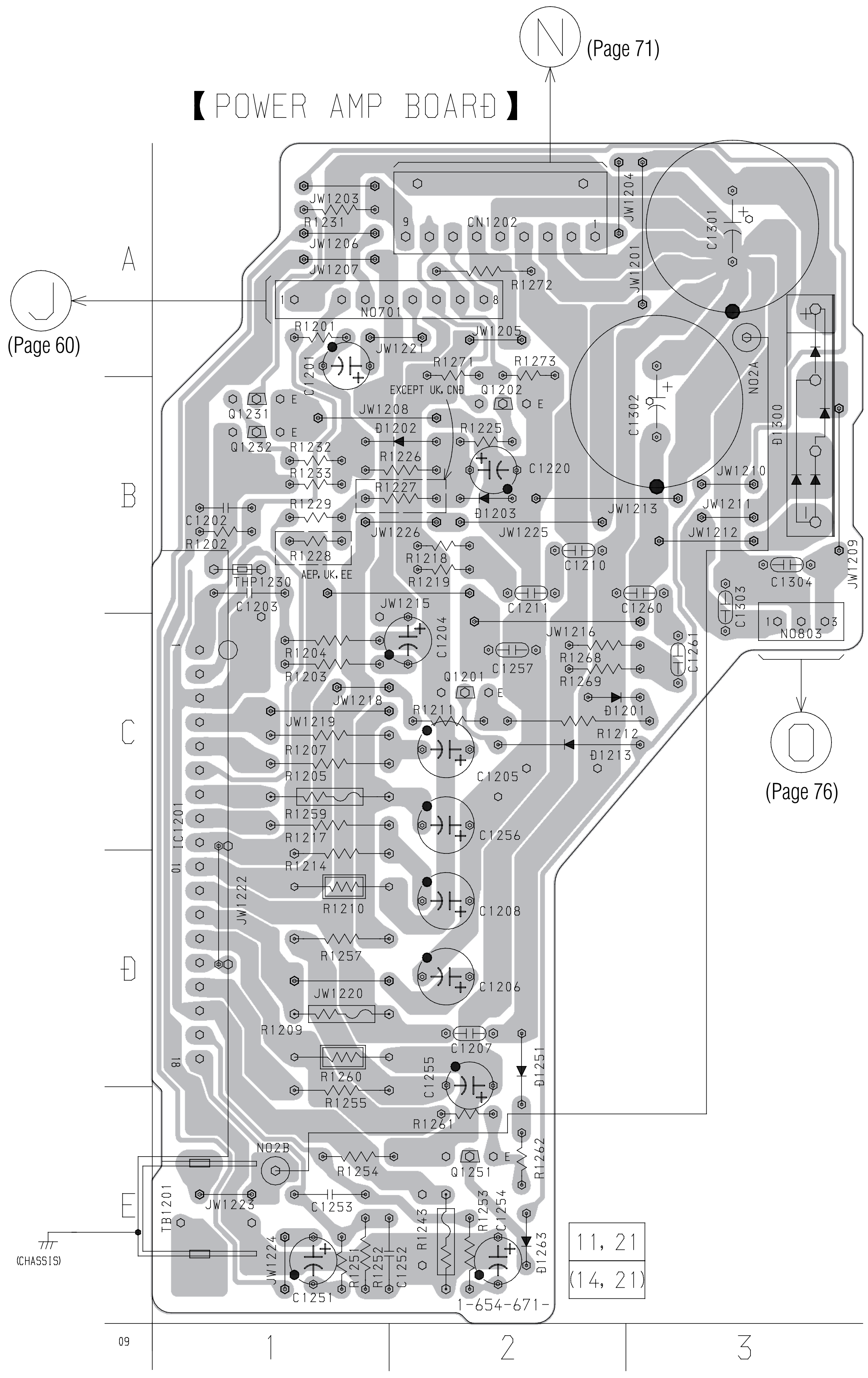


* DEST	R1227	R1220
US, CND	10k	100k
AEP, UK, EE	9.1k	110k
MY, SP, JE, HK, AR, AUS	9.1k	100k

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-25. PRINTED WIRING BOARD – POWER AMP SECTION –

• See page 31 for Circuit Boards Location.



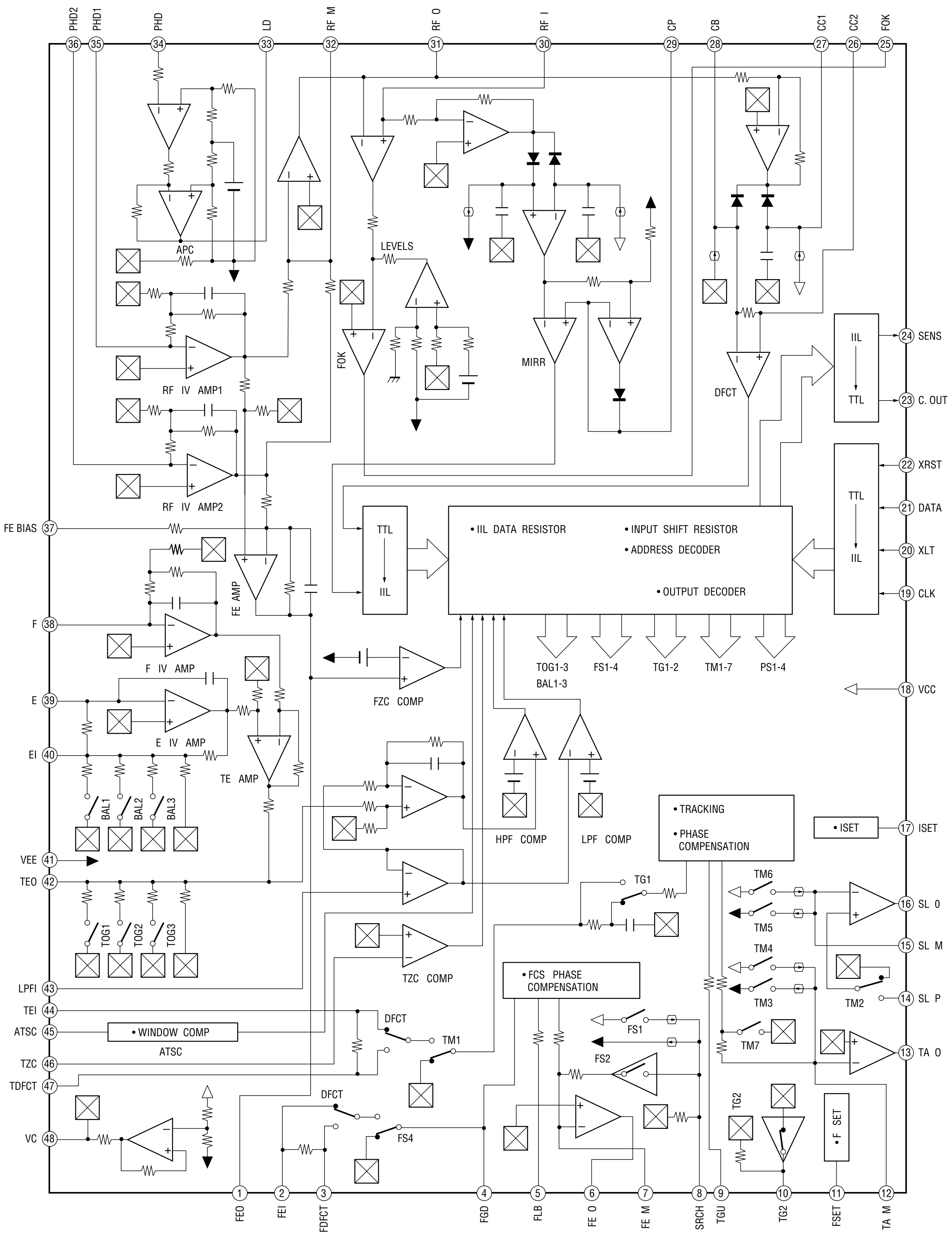
• **Semiconductor Location**

Ref. No.	Location
D1201	C-2
D1202	B-1
D1203	B-2
D1213	C-2
D1251	D-2
D1263	E-2
D1300	B-3
IC1201	C-1
Q1201	C-2
Q1202	B-2
Q1231	B-1
Q1232	B-1
Q1251	E-2

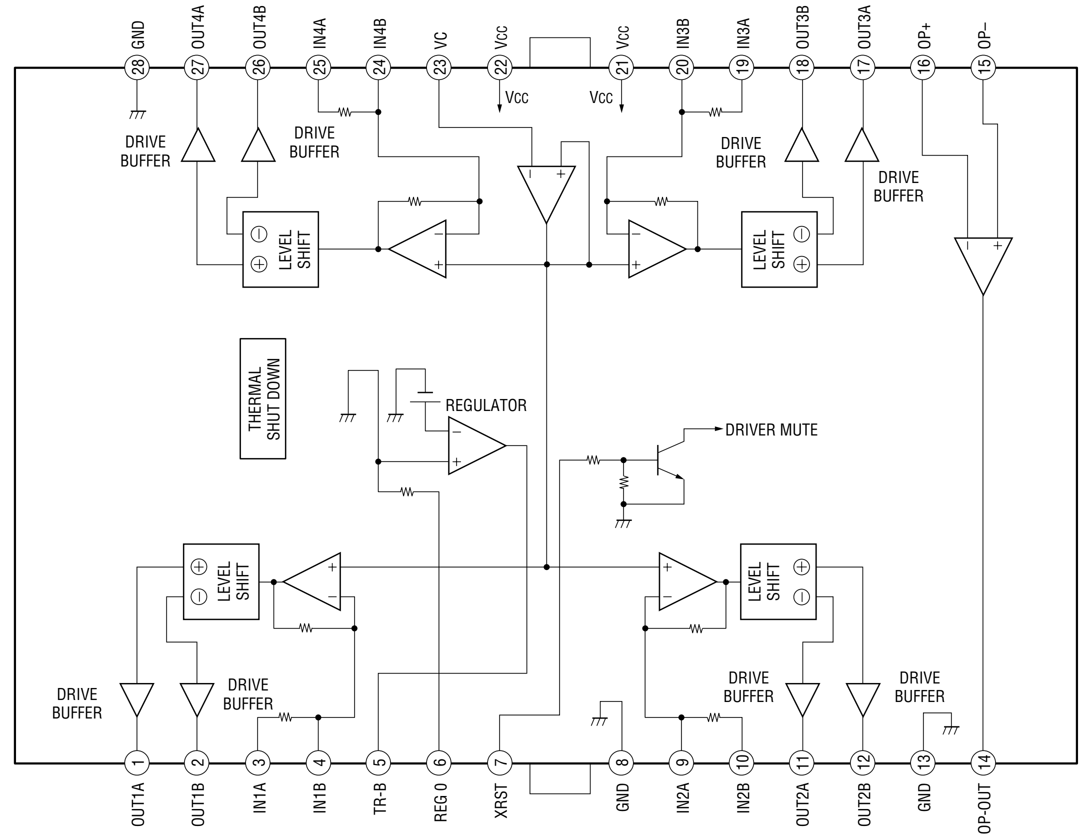
7-26. IC BLOCK DIAGRAMS

• CD section

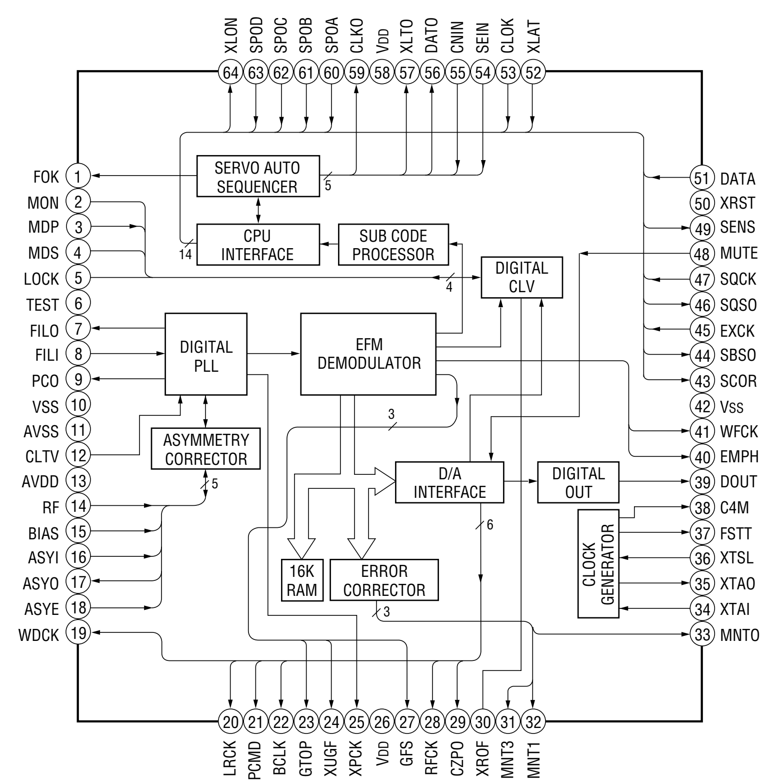
IC101 CXA1782BQ



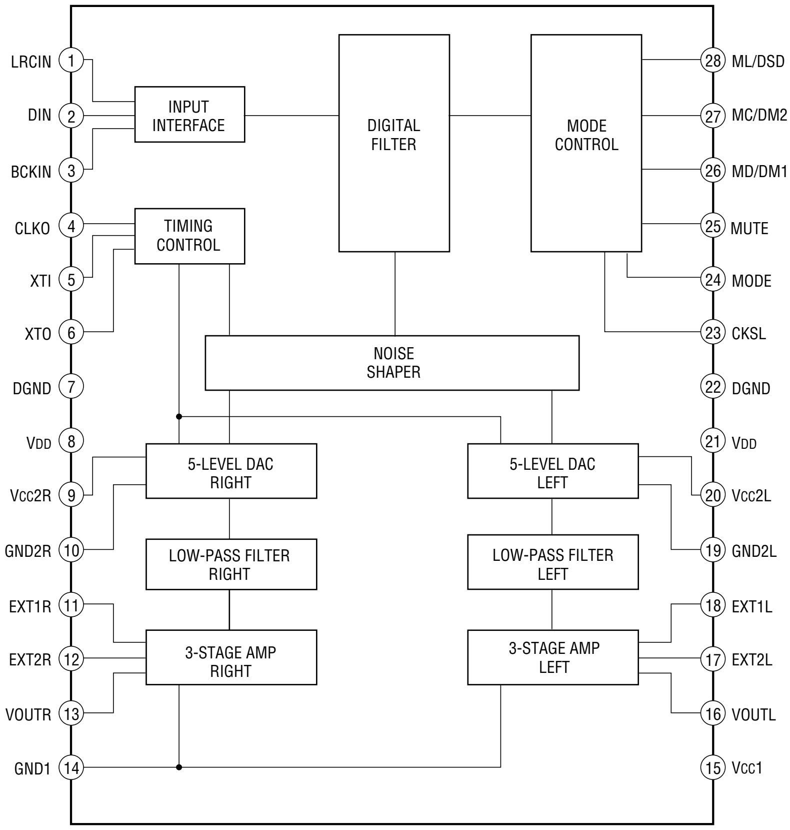
IC102 BA6397FP



IC103 CXD2507AQ

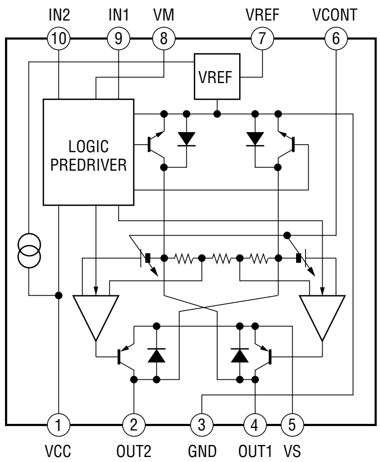


IC104 PCM1710U-B

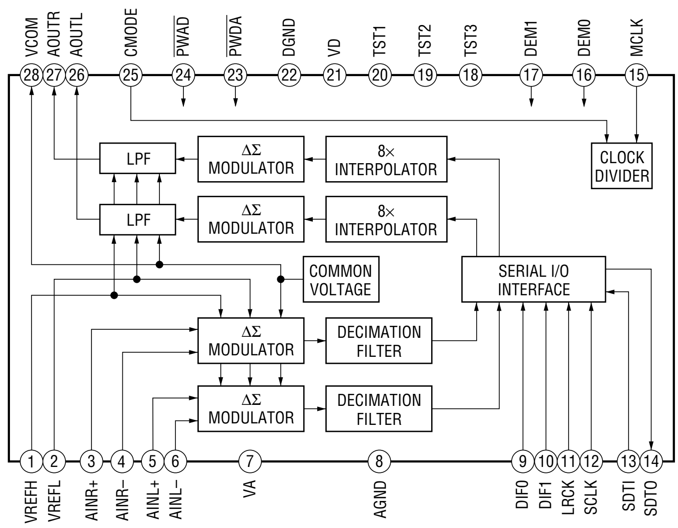


– MD Section –

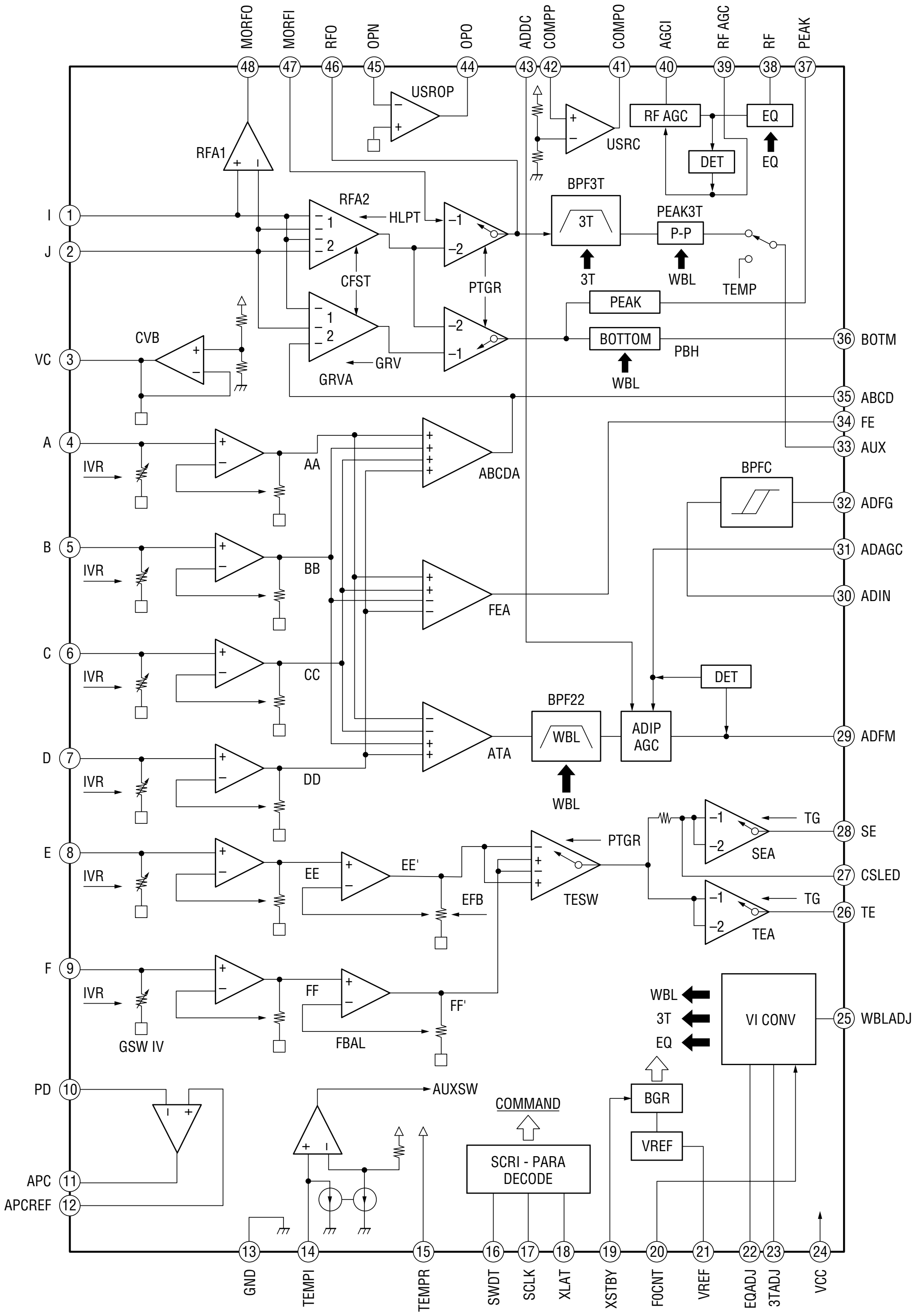
IC153 LB1830-S-TE-L



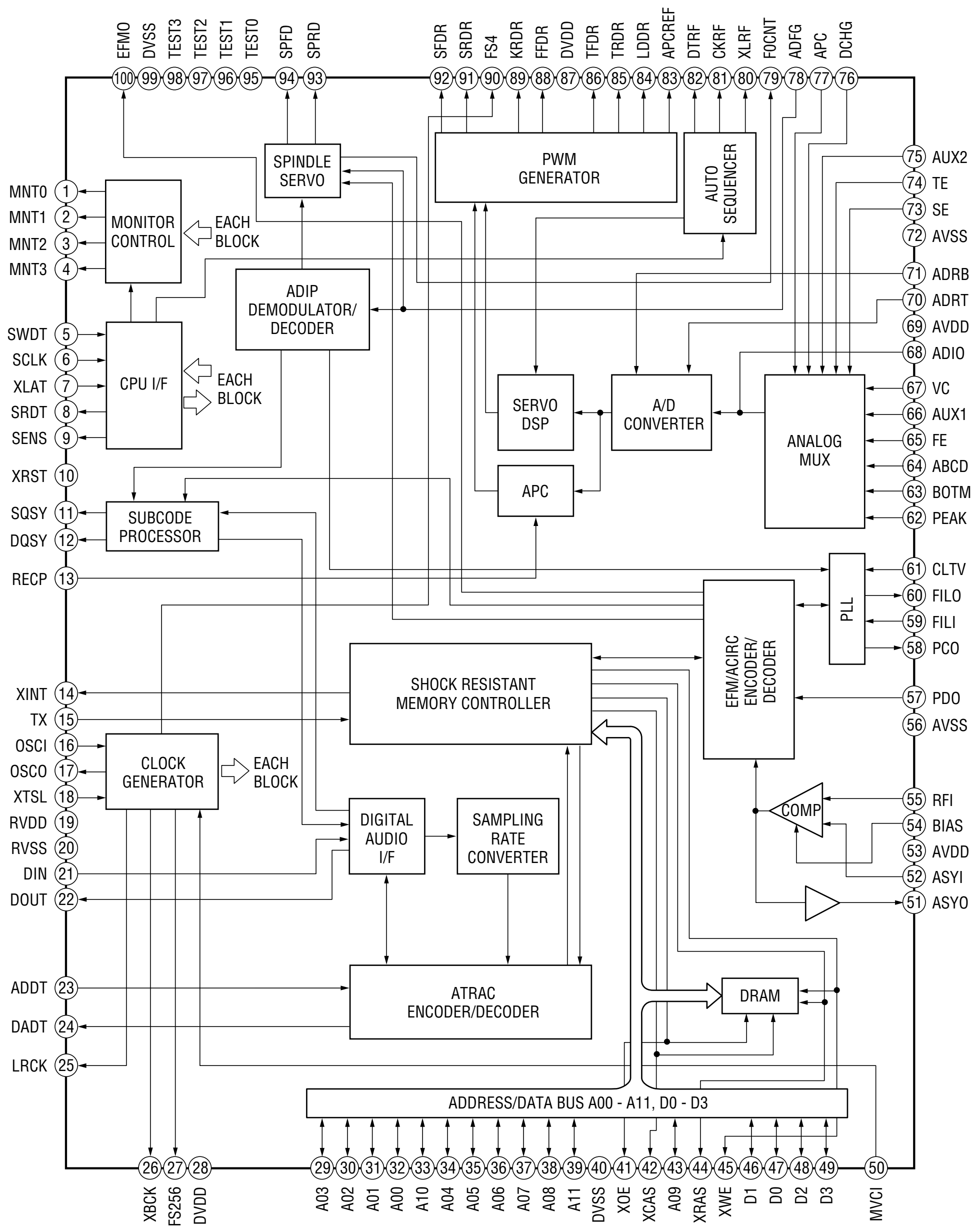
IC201 AK4520A-VF-E2



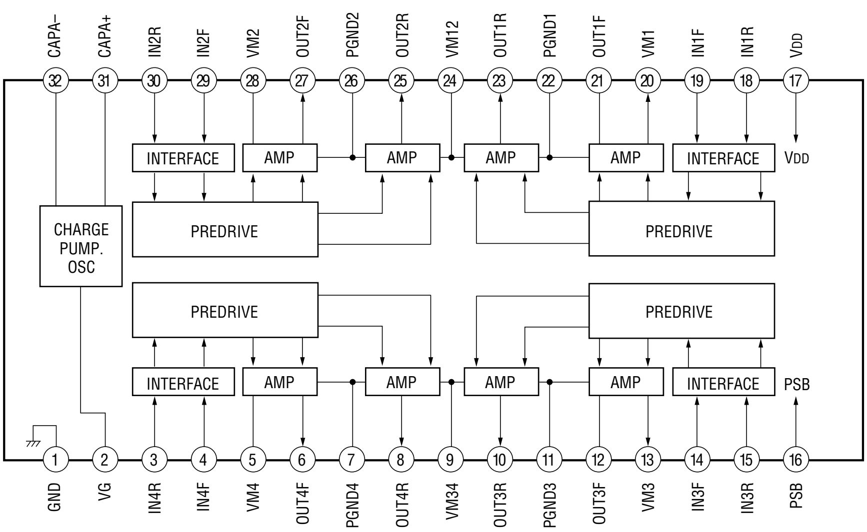
IC101 CXA2523AR



IC121 CXD2652AR

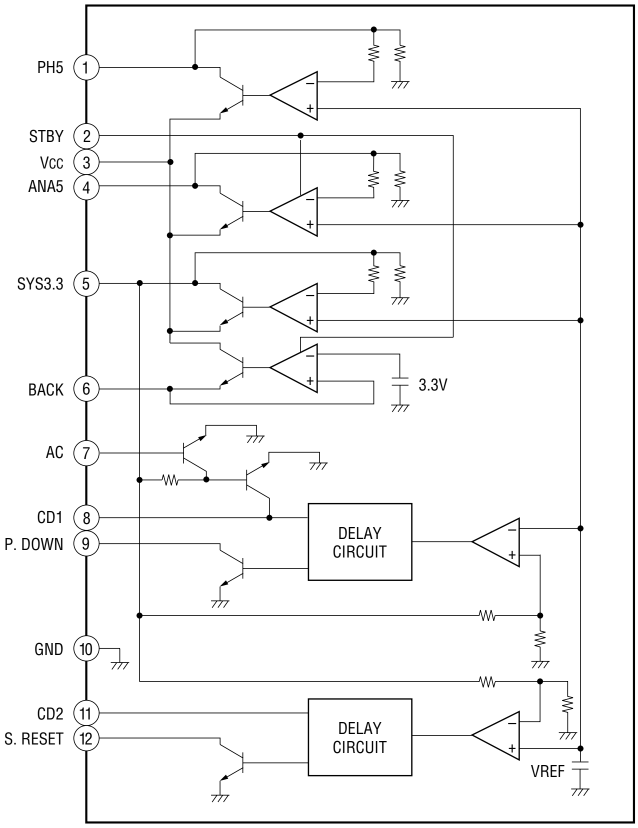


IC152 BH6511FS-E2

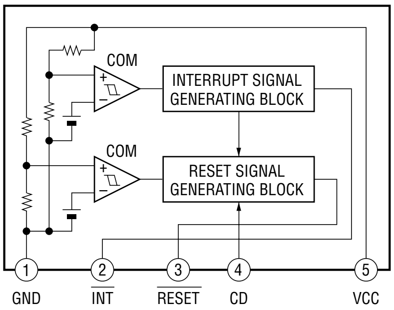


– MAIN Section –

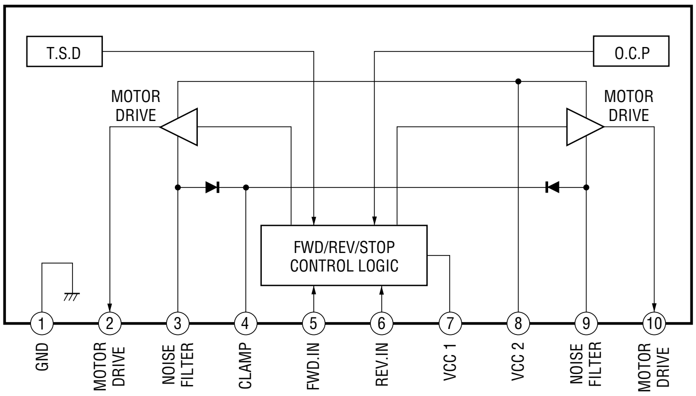
IC570 LA5620



IC603 M62016L

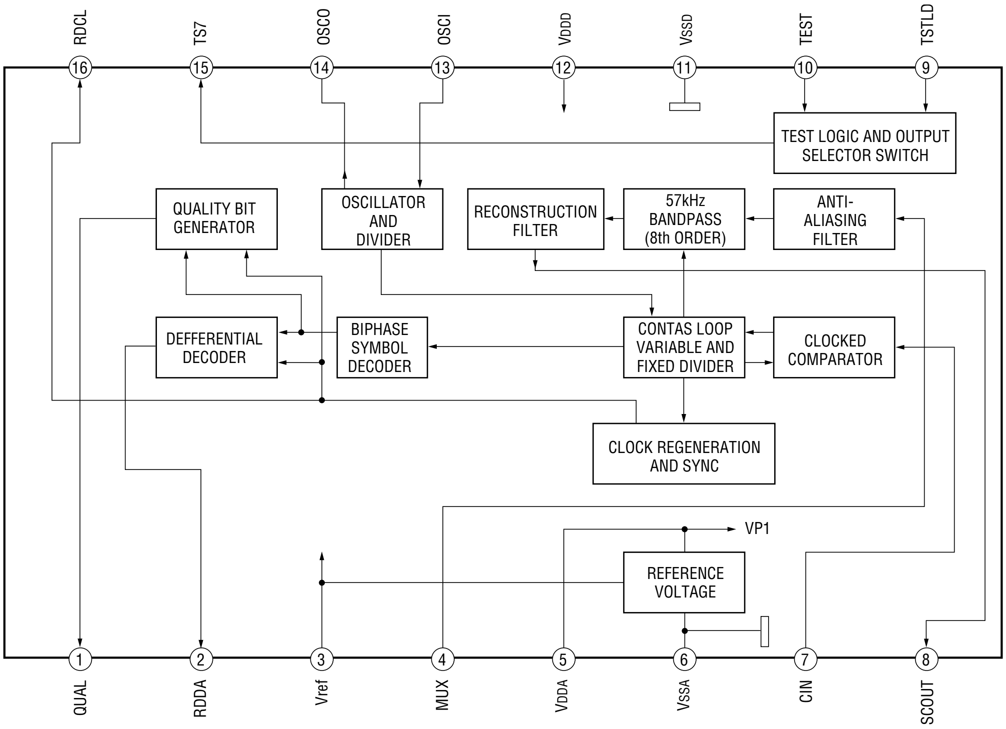


IC801 LB1641



– AUDIO Section –

IC1500 BU1922F



7-27. IC PIN FUNCTIONS

• IC101 CXA2523AR (RF Amplifier) (BD (MD) Board)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input terminal
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2652AR (IC121)
17	SCLK	I	Serial clock signal input from the CXD2652AR (IC121)
18	XLAT	I	Serial latch signal input from the CXD2652AR (IC121)
19	$\overline{\text{XSTBY}}$	I	Standby signal input terminal "L": standby (fixed at "H" in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz ± 1 kHz) output to the CXD2652AR (IC121)
33	AUX	O	Auxiliary signal (I3 signal/temperature signal) output to the CXD2652AR (IC121)
34	FE	O	Focus error signal output to the CXD2652AR (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at "L")
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at "L")
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **IC121 Digital Signa; Processor, Digitak Servo Signal Processor, EFM/ACIRC Encoder/Decoder, Shock-proof Memory Controller, ATRAC Encoder/Decoder, 2M Bit DRAM (CXD2652R) (BD (MD) Board)**

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	Focus OK signal output to the MD system controller (IC316) "H" is output when focus is on
2	MNT1 (SHCK)	O	Track jump detection signal output to the MD system controller (IC316)
3	MNT2 (XBUSY)	O	Monitor 2 signal output to the MD system controller (IC316)
4	MNT3 (SLOC)	O	Monitor 3 signal output to the MD system controller (IC316)
5	SWDT	I	Writing data signal input from the MD system controller (IC316)
6	SCLK	I	Serial clock signal input from the MD system controller (IC316)
7	XLAT	I	Serial latch signal input from the MD system controller (IC316)
8	SRDT	O (3)	Reading data signal output to the MD system controller (IC316)
9	SENS	O (3)	Internal status (SENSE) output to the MD system controller (IC316)
10	$\overline{XRST}$	I	Reset signal input from the MD system controller (IC316) "L": reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD system controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD system controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
13	RECP	I	Laser power selection signal input from the MD system controller (IC316) "H": recording mode, "L": playback mode
14	XINT	O	Interrupt status output to the MD system controller (IC316)
15	TX	I	Recording data output enable signal input from the MD system controller (IC316) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input terminal
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal
18	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for optical in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for optical out) Not used
23	ADDT	I	Recording data input from the A/D, D/A converter (IC201)
24	DADT	O	Playback data output to the A/D, D/A converter (IC201)
25	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201)
27	FS256	O	Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29	A03	O	Address signal output to the external D-RAM (IC124)
30	A02	O	
31	A01	O	
32	A00	O	
33	A10	O	
34	A04	O	
35	A05	O	
36	A06	O	
37	A07	O	
38	A08	O	
39	A11	O	

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
40	DVSS	—	Ground terminal (digital system)
41	XOE	O	Output enable signal output to the external D-RAM (IC124)
42	XCAS	O	Column address strobe signal output to the external D-RAM (IC124)
43	A09	O	Address signal output to the external D-RAM (IC124)
44	XRAS	O	Row address strobe signal output to the external D-RAM (IC124)
45	XWE	O	Write enable signal output to the external D-RAM (IC124)
46	D1	I/O	Two-way data bus for the external D-RAM (IC124)
47	D0	I/O	
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
65	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
66	AUX1	I (A)	Auxiliary signal (I3 signal/temperature signal) input from the CXA2523AR (IC101)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground terminal (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal Not used (fixed at “H”)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at “L”)
78	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial latch signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing data output to the CXA2523AR (IC101)

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC152)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC152)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC152)
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC152)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X'tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC152)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC152)
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC152)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC152)
95	FGIN	I	Input terminal for the test (fixed at "L")
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

• **IC316 M30610MCA-272FP (MD SYSTEM CONTROL) (BD (MD) BOARD)**

Pin No.	Pin Name	I/O	Function
1,2	(JOG0, JOG1)	I	Encoder switch signal input terminal Not used (fixed at “H”)
3,4	DAOUT1, DAOUT2	O	Not used (fixed at “L”)
5	SQSY	I	Subcode Q sync (SCOR) input from the CXD2652AR (IC121)
6	REMCON	I	Remote control signal input
7	EMP	O	De-emphasis control signal output to the AK4520 (IC201)
8	BYTE	I	External data bus line byte select signal input terminal “L”:16bit “H”: 8bit (fixed at “L”)
9	CNVSS	I	Processor mode select signal input terminal (fixed at “L”)
10	XIN-T	I	Sub system clock input tarminal Not used (fixed at “L”)
11	(XOUT-T)	O	Sub sytem clock output tarminal Not used (fixed at “L”)
12	SYSTEM-RST	I	MD reset signal input from the M62016 (IC603)
13	XOUT	O	Main system clock signal output terminal
14	GND	—	Ground terminal
15	XIN	I	Main sytem clock signal input terminal
16	+3V	—	Power supply terminal (+3.3V)
17	NMI	—	Connecting to power supply
18	AMUTE	—	Not used (fixed at "L")
19	PWR-DWN	O	Power down detect signal output to the LA5620 (IC570)
20	DQSY	I	Digital in U-bit CD format subcode Q sync (SCOR) input from theCXD2652SAR (IC121)
21	STB	I	Stand-by signal input terminal Not used (fixed at “L”)
22	DA-RST	I	D/A converter reset signal input terminal Not used (fixed at “L”)
23	XINT	I	Interrupt status input from the CXD2652AR (IC121)
24	DA-EN	O	D/A converter enable signal output to the AK4520 (IC201)
25	AD-EN	O	A/D converter enable signal output to the AK4520 (IC201)
26	MEC-BUSY	O	Mecha-busy signal output to the master control (IC601)
27	FLCS	O	Display clear signal output terminal Not used (fixed at “L”)
28	FLCLK	O	Display data clock signal output terminal Not used (fixed at “L”)
29	—	—	Not used (fixed at “L”)
30	FLDATA	O	Display data signal output terminal Not used (fixed at “L”)
31	TXD	O	MD control data signal output to the master control (IC601)
32	RXD	I	MD control data signal input to the master control (IC601)
33	CLK	I	MD control data clock signal input to the master control (IC601)
34	MAS-BUSY	I	Master-busy signal input from the master control (IC601)
35	SWDT	O	Writing data signal output to the CXD2652AR (IC121)
36	SRDT	I	Reading data signal input from the CXD2652AR (IC121)
37	SCLK	O	Serial clock signal output to the CXD2652AR (IC121)
38	XLAT	O	Serial latch signal output to the CXD2652AR (IC121)
39	—	O	Clock signal output terminal Not used (fixed at “L”)
40	DIG-RST	O	Reset signal output enable signal output to the CXD2652AR (IC121)
41	SENS	I	Status (SENSE) input from the CXD2652AR (IC121)
42	SCTX	O	Recording data output enable signal output to the CXD2652AR (IC121)
43	XINT	O	Not used (fixed at “L”)
44	WRPWR	O	Laser power selection signal output to the CXD2652AR (IC121)
45	MNT3	I	Monitor 3 signal input from the CXD2652AR (IC121)
46	MNT2	I	Monitor 2 signal input from the CXD2652AR (IC121)
47	MNT1	I	Track jump detection signal input from the CXD2652AR (IC121)
48	MNTO	I	Focus OK signal input from the CXD2652AR (IC121)
49	LDON	O	Laser diode ON signal output terminal
50	MOD	O	HF module ON signal output terminal

Pin No.	Pin Name	I/O	Function
51	LDIN	O	MD loading-in signal output to LB1830M (IC153)
52	LDOUT	O	MD loading-out signal output to LAB1830M (IC153)
53	LD-LOW	O	Loading motor voltage control signal output to the loading motor driver
54	PROTECT	I	MD PROTECT switch (S683) detect signal input terminal
55	REFLECT	I	MD REFLECT switch (S682) detect signal input terminal
56	PACK-IN	I	Not used
57	PACK-OUT	I	MD PACK OUT switch (S686) detect signal input terminal
58	CHUCK-IN	I	MD CHUCKING IN switch (S685) detect signal input terminal
59	LIMIT-IN	I	MD LIMIT IN switch (S681) detect signal input terminal
60	REC. P	I	MD REC POSITION switch (S688) detect signal input terminal
61	PB. P	I	MD PB POSITION switch (S687) detect signal input terminal
62	+5V	—	Power supply (+5V)
63	—	—	Not used (fixed at “L”)
64	GND	—	Ground terminal
65 to 72	—	—	Connect terminal 65 to 72 Not used (fixed at “L”)
73 to 78	—	—	Not used (fixed at “L”)
79	SDA	I/O	Tow-way data bus for the EEPROM (IC171)
80	SCL	O	Clock signal output to the EEPROM (IC171)
81, 82	—	—	Not used (fixed at “L”)
83	POWER	—	Conenct terminal 83 to 85 Not used (fixed at “L”)
84, 85	—	—	
86, 87	—	—	Not used (fixed at “L”)
88 to 90	—	—	Connect terminal 88 to 90 Not used (fixed at “L”)
91 to 93	KEY0, KEY1, KEY2	—	Connect terminal 91 to 93 Not used (fixed at “H”)
94	—	—	Not used (fixed at “L”)
95	SOURCE	—	Not used (fixed at “L”)
96	AVSS	—	Ground terminal
97	—	—	Not used (fixed at “L”)
98	VREF5V	—	Power supply (+5V)
99	3.3V	—	Power supply (+3.3V)
100	—	—	Not used (fixed at “L”)

• **IC601 μPD78078GF-062-3BA (MASTER CONTROL) (MAIN BOARD (1/3))**

Pin No.	Pin Name	I/O	Function
1 to 3	VER	I	Destination setting terminal
4	VER	I	Destination setting terminal Not used (open)
5 to 7	(NC)	—	Not used
8	—	—	Not used (open)
9	IC	—	Connecting to ground
10	X2	O	Main system clock output terminal (5 MHz)
11	X1	I	Main system clock input terminal (5 MHz)
12	VDD	—	Power supply terminal (+5V)
13	XT2	O	Sub system clock output terminal (32 kHz)
14	XT1	I	Sub system clock input terminal (32 kHz)
15	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC602)
16	AU-BUS IN	I	AU-BUS signal input terminal
17	AU-BUS OUT	O	AU-BUS signal output terminal
18	ENC/A	I	Encorder volume signal A input from the master volume (S901)
19	ENC/B	I	Encoder volume signal B input from the master volume (S901)
20	RDS/CLK	I	RDS clock signal input from the RDS demodulator (IC1500)
21	RDS/DATA	I	RDS data signal input from the RDS demodulator (IC1500)
22	SCOR (BD)	I	Sub-code sync S0, S1 detect signal input from the digital signal processor (IC103)
23	AVDD	—	Power supply terminal (+5V) (for A/D converter)
24	AVREF0	—	Reference voltage input terminal (+5V) (for A/D converter)
25	KEY0	I	Key input terminal (A/D input) POWER key (S902) input
26	KEY 1	I	Key input terminal (A/D input) ■ (CD), ►II (CD), ≙ (CD), ■ (MD), ►II (MD), ≙ (MD) keys (S903 to S908) input
27	KEY 2	I	Key input terminal (A/D input) FUNCTION, ►► ►►I +, TUNER/BAND, I◄◄ ◄◄ –, ● REC, CD-MD SYNC, REPEAT STEREO/MONO, PLAY MODE TUNING MODE (S909 to S916) input
28 to 30	—	—	Not used
31	RTS (TO MD. CTS) MASTER BUSY	O	Master-busy signal output to the MD system control (IC316)
32	MD-POWER	O	MD power on/off signal output to the MD power regulator (IC570)
33	AVSS	—	Ground terminal (for A/D converter)
34	$\overline{\text{POWER ON}}$	I	System power on signal input terminal
35	MD OEM/REST	O	MD reset signal output terminal
36	AVREF1	I	Reference voltage input terminal (+5V) (for A/D converter)
37	RXD (TO MD. TXD) RXD	I	MD control data signal input from the MD system control (IC316)
38	TXD (TO MD. RXD) TXD	O	MD control data signal output to the MD system control (IC316)
39	MD-CLK	O	MD control data clock signal output to the MD system control (IC316)
40	VSS	—	Ground terminal
41	CTS (TO MD. RTS) MECHA BUSY	I	Mecha-busy signal input from the MD system control (IC316)
42	FL/DRIV DATA	O	Display data signal output to the fluorescent indicator drive (IC901)
43	FL/DRIV CLOCK	O	Display data clock signal output to the fluorescent indicator drive (IC901)
44	FL/DRIV $\overline{\text{CS}}$	O	Display clear signal output to the fluorescent indicator drive (IC901) “L”: data output
45	FL/DRIVE RESET	O	Display reset signal output to the fluorescent indicator drive (IC901) “L”: reset
46	BD SUBQ	I	Sub-code Q data signal input from the CXD2507AQ (IC103)
47	(NC)	—	Not used (open)

Pin No.	Pin Name	I/O	Function
48	BD SQCLK	O	Sub-code Q data reading clock signal output to the CXD2507AQ (IC103)
49	BD CLOCK	O	Serial data clock signal output to the CXD2507AQ (IC103)
50	BD DATA	O	Serial data output to the CXD2507AQ (IC103)
51	XLT	O	Serial data latch pulse signal output to the CXD2507AQ (IC103)
52	PRGL (DF. LAT)	O	Serial data latch pulse signal output to the PCM1710U (IC104)
53	SENCE	I	Internal status (SENSE) signal input from the CXD2507AQ (IC103)
54	ADJ	I	Test mode input terminal “H’: normal (fixed at “H” in this set)
55	IN-SW	I	Disc tray close complete signal input terminal “L”: Completed
56	OUT-SW	I	Disc tray open complete signal input terminal “L” Completed
57	LOAD-OUT	O	Disc tray loading out signal output to the motor driver (IC801)
58	LOAD-IN	O	Disc tray loading in signal output to the motor driver (IC801)
59	FOCUS-SW	O	Focus gain selection switch signal output terminal “L”: normal “H”: down
60	BD-REST	O	BD block reset signal output terminal “L”: reset
61	CD-POWER	O	CD power on/off signal output to the CD power regulator (Q561, 562)
62	ST-POWER	O	ST power on/off signal output terminal Not used (open)
63	D. IN. SELECT	O	Optical/CD select signal output terminal “H”: optical “L”: CD
64, 65	—	—	Not used
66	LED-CD. DISC	O	CD INDICATOR LED (D908) drive signal output terminal
67	LED-MD. DISC	O	MD INDICATOR LED (D905) drive signal output terminal
68	LED-MD. REC	O	● LED (D904) drive signal output terminal
69	LED-CD. PAUSE	O	❚❚ (CD) LED (D907) drive signal output terminal
70	LED-CD. PLAY	O	▶ (CD) LED (D906) drive signal output terminal
71	VSS	—	Ground terminal
72	LED-MD. PAUSE	O	❚❚ (MD) LED (D903) drive signal output terminal
73	LED-MD. PLAY	O	▶ (MD) LED (D902) drive signal output terminal
74	DBFB	O	DBFB on/off signal output terminal “L”: on
75	RECOUT. MUTE	O	Rec mute (tape) signal output terminal “L”: mute
76	MUTE	O	Mute signal output terminal
77	ATT/6DB	O	Tape input level attenuate signal output terminal
78	SOUND/IC DATA	O	Graphic equalizer data signal output to the M62428FP (IC701)
79	SOUND/IC CLOCK	O	Graphic equalizer data clock signal output to the M62428FP (IC701)
80	SOUND/IC LAT	O	Graphic equalizer data latch pulse signal output to the M62428FP (IC701)
81	(GND)	—	Ground terminal
82	ST STEREO	I	Stereo detection signal input from the tuner
83	ST TUNED	I	Tuned detection signal input from the tuner
84	ST DATA-IN	I	Data signal input from the tuner
85	ST DATA-OUT	O	Data signal output to the tuner
86	ST CLOCK	O	Data transfer clock signal output to the tuner
87	ST CE	O	Chip enable signal output to the tuner
88	ST MUTE	O	Mute signal output to the tuner
89	FM/AM SELECT	O	FM/AM select signal output Not used (open)
90	SIRCUS	I	Remote control signal input from the remote control receiver (IC902)
91	—	—	Not used (open)
92	—	—	Connecting to ground
93	FAN SPEED	O	Fan speed control signal output terminal Not used (open)
94	FAN STOP	O	Fan on/off signal output terminal Not used (open)
95 to 99	—	—	Connecting to ground
100	BACKUP	I	System reset signal input from the reset signal generator (IC602)

SECTION 8
EXPLODED VIEWS

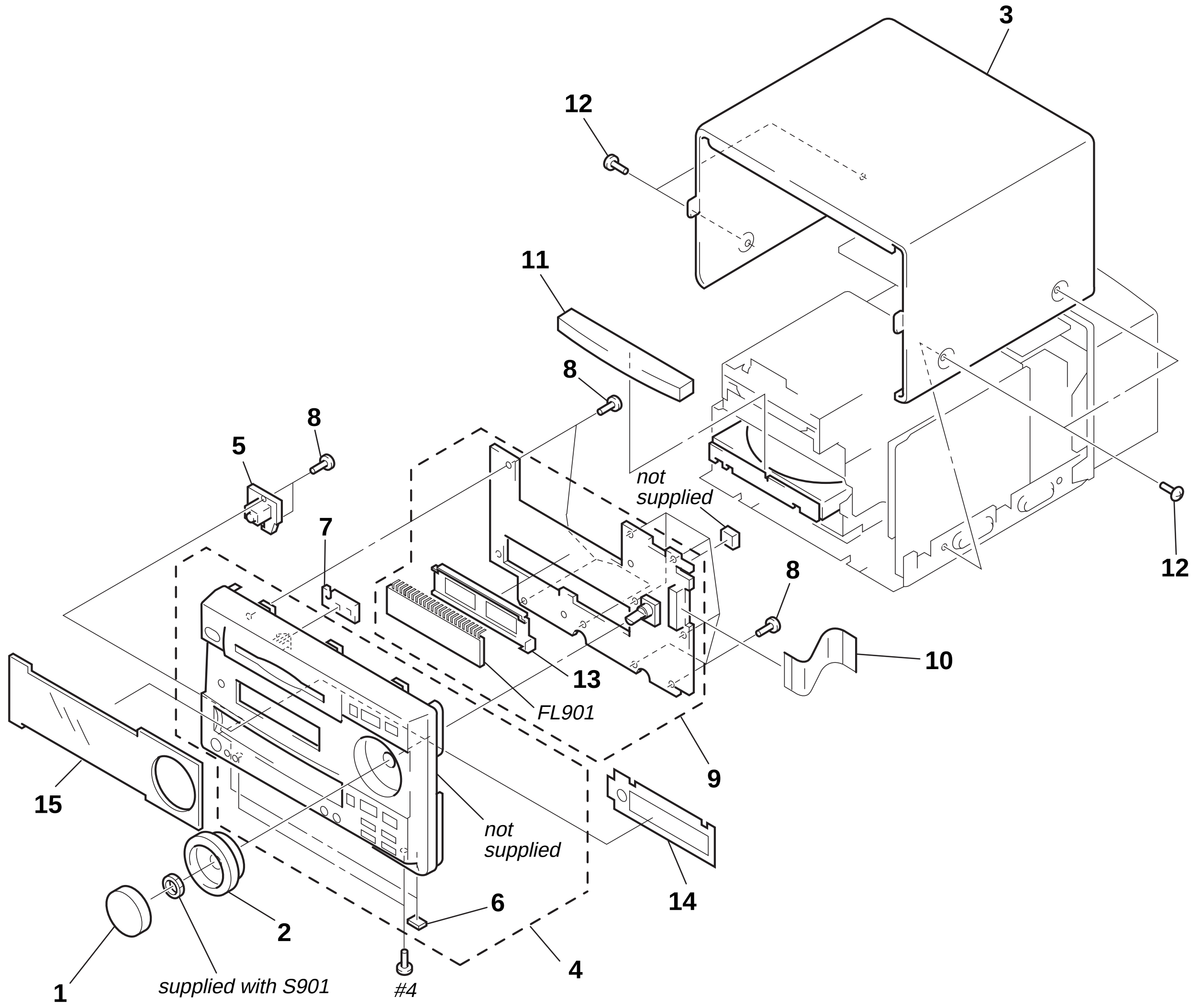
NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
  - CND : Canadian model
  - EE : East European model
  - HK : Hong Kong model
  - SP : Singapore model
  - MY : Malaysia model
  - AR : Argentine model
  - AUS : Australian model
  - JE : Tourist model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

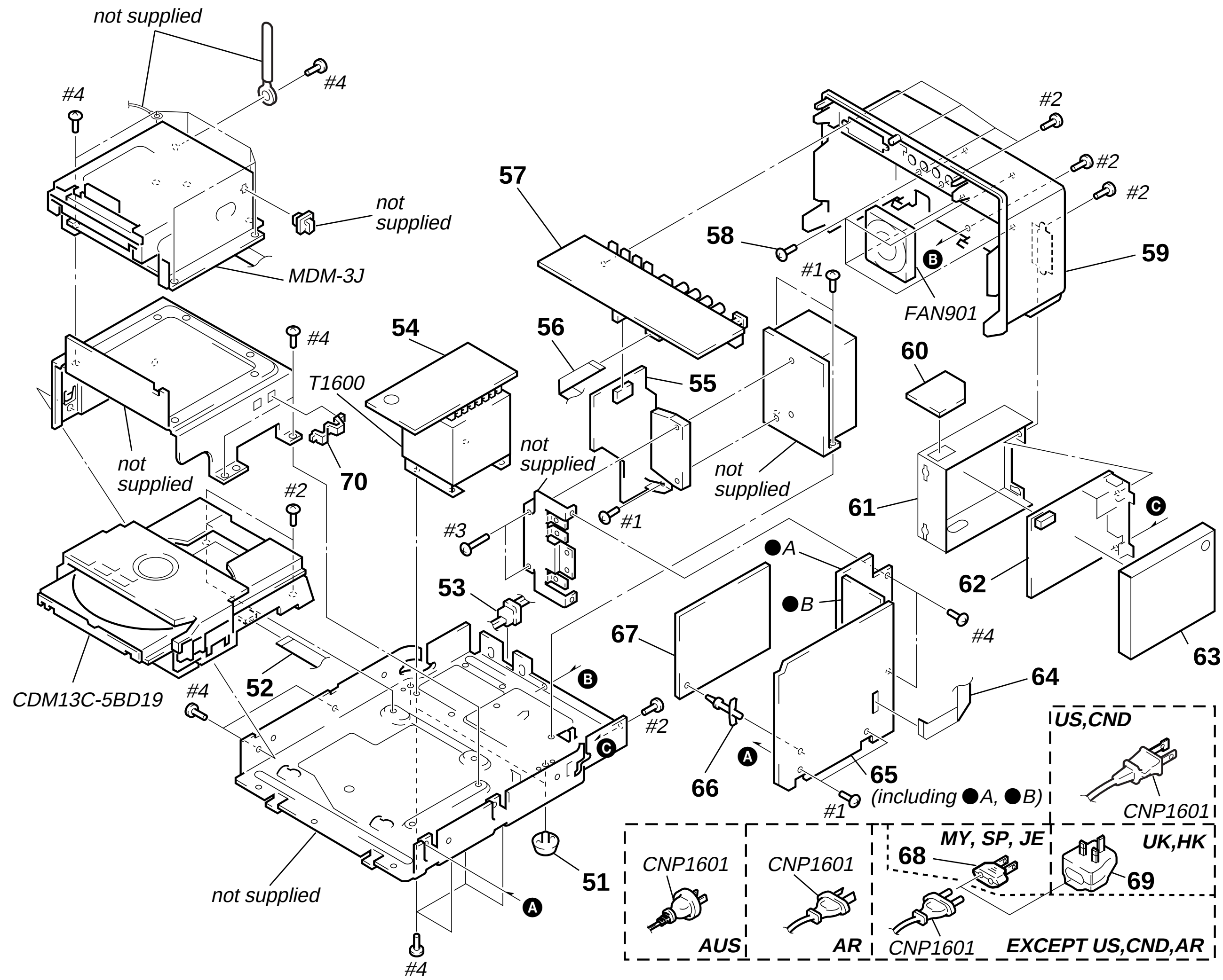
8-1. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	4-210-901-01	KNOB (VOL)	
2	4-210-903-01	ORNAMENT (VOL)	
* 3	4-993-842-01	CASE	
4	X-4950-225-1	PANEL ASSY, FRONT	
* 5	1-671-020-21	HP BOARD	
* 6	4-930-336-71	FOOT (FELT)	
* 7	1-670-745-21	MD LED BOARD	
8	4-951-620-01	SCREW (2.6X8), +BVTP	
* 9	A-4417-317-A	PANEL BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
10	1-782-793-11	WIRE (FLAT TYPE) (23 CORE)	
11	4-210-902-01	PANEL, LOADING	
12	3-363-099-11	SCREW (CASE 3 TP2)	
* 13	4-993-866-21	HOLDER (FL)	
14	4-212-098-01	FILTER	
15	4-210-890-11	WINDOW (FL)(AEP,UK,EE)	
15	4-210-890-21	WINDOW (FL)(EXCEPT AEP,UK,EE)	
FL901	1-517-687-11	INDICATOR TUBE, FLUORESCENT	

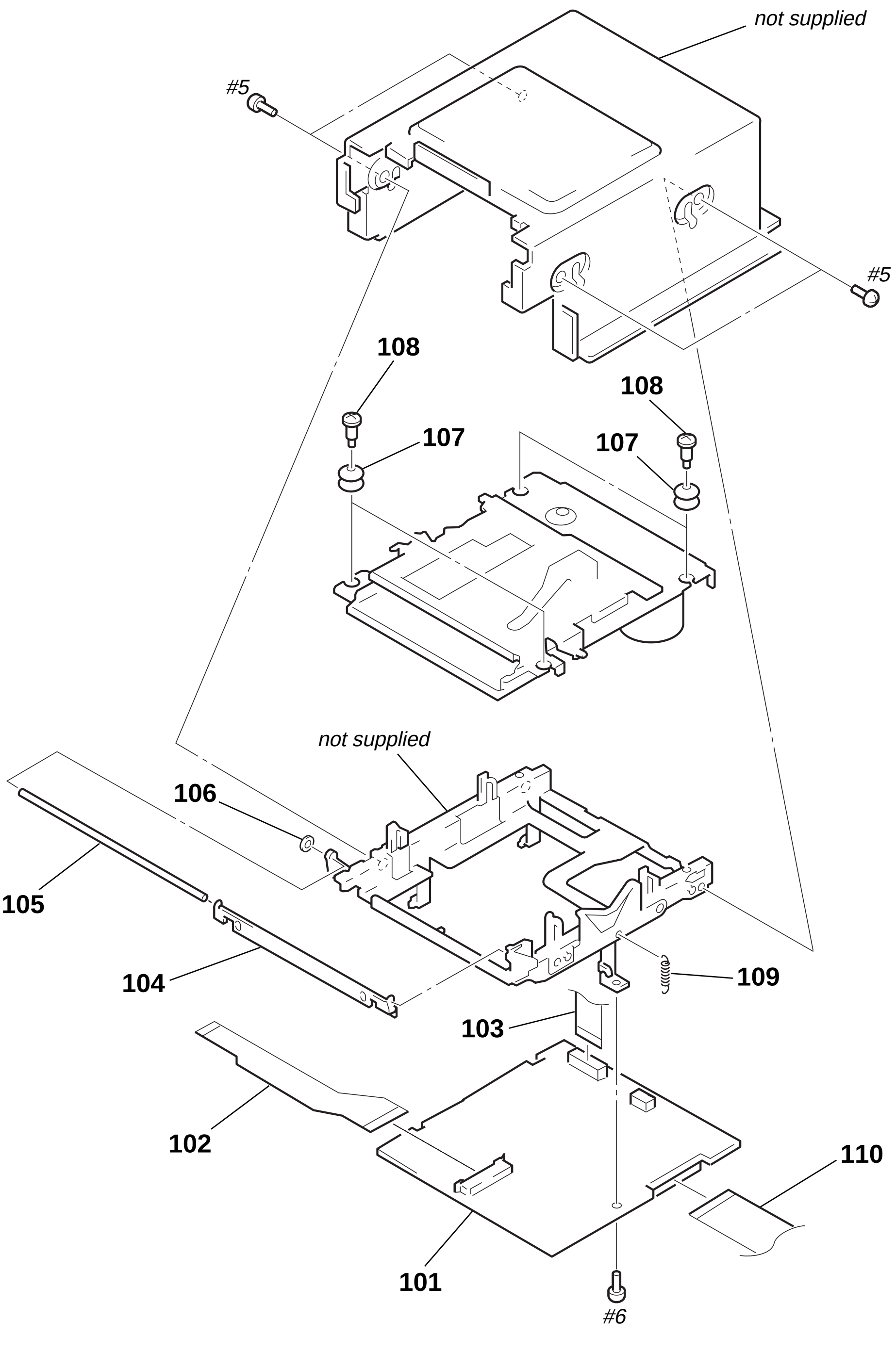
8-2. CHASSIS SECTION



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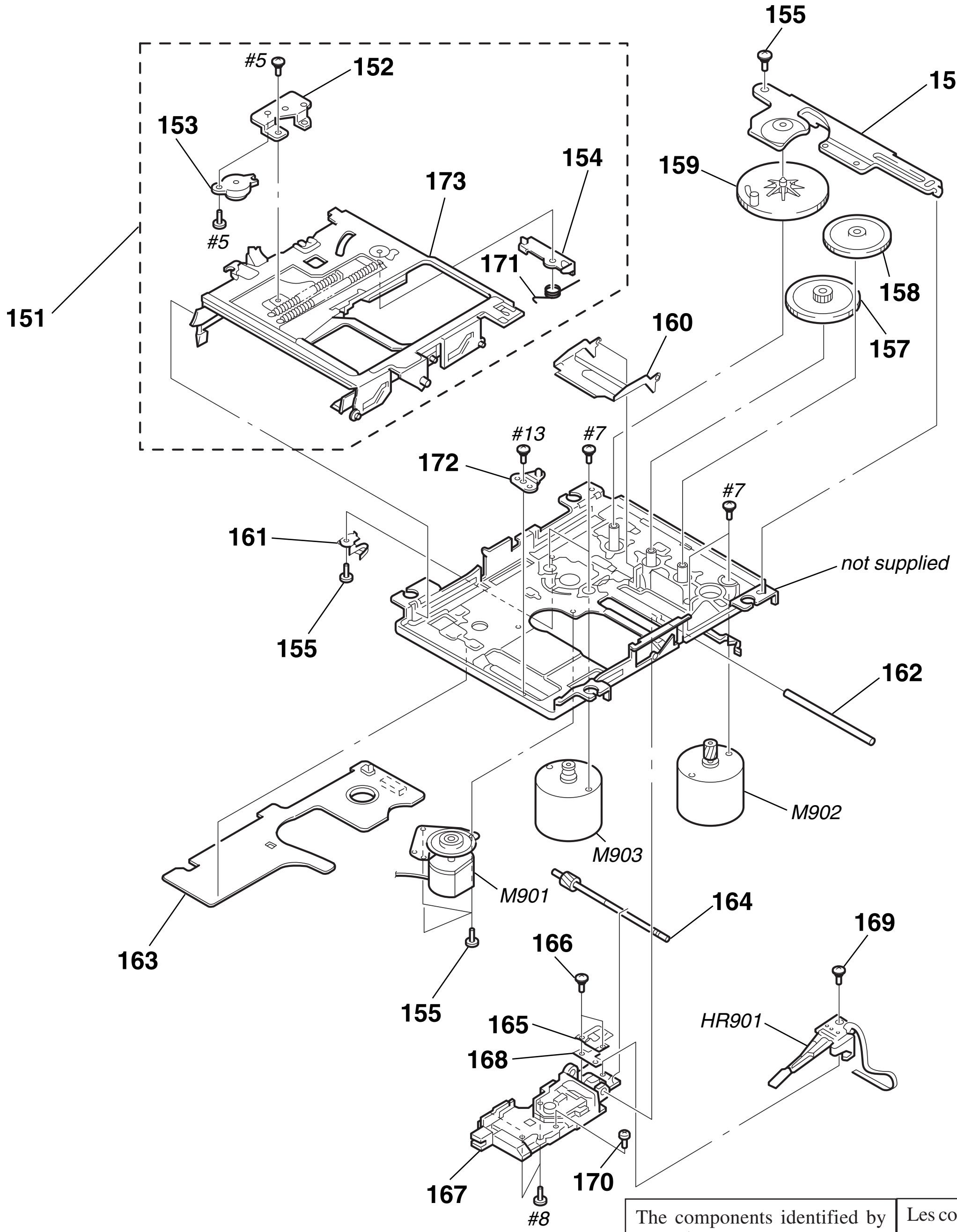
Ref. No.	Part No.	Description	Remark
51	4-993-867-01	FOOT (8)	
52	1-782-990-11	WIRE (FLAT TYPE) (19 CORE)	
53	3-703-244-00	BUSHING (2104), CORD	
* 54	1-666-904-11	TRANS BOARD	
* 55	A-4417-126-A	POWER AMP BOARD, COMPLETE (AEP,UK,EE)	
* 55	A-4417-130-A	POWER AMP BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS)	
* 55	A-4417-134-A	POWER AMP BOARD, COMPLETE (US,CND)	
56	1-782-991-11	WIRE (FLAT TYPE) (15 CORE)	
* 57	A-4414-823-A	JACK BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS)	
* 57	A-4414-826-A	JACK BOARD, COMPLETE (US,CND)	
* 57	A-4414-830-A	JACK BOARD, COMPLETE (AEP,UK,EE)	
58	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
* 59	4-993-849-52	PANEL, BACK (AEP,UK,EE)	
* 59	4-993-849-61	PANEL, BACK (MY,SP,JE,HK,AR,AUS)	
* 59	4-993-849-71	PANEL, BACK (US,CND)	
* 60	1-666-905-11	ST TERMINAL BOARD	
* 61	4-984-203-21	PLATE (ST-A), SHIELD	
62	1-233-544-21	ENCAPSULATED COMPONENT (US,CND)	
62	1-233-546-21	ENCAPSULATED COMPONENT (MY,SP,JE,HK,AR,AUS)	
62	1-693-387-21	TUNER (FM/MW/LW)(AEP,UK,EE)	
* 63	4-984-204-11	PLATE (ST-B), SHIELD	
64	1-783-213-11	WIRE (FLAT TYPE) (15 CORE)	
* 65	A-4417-124-A	MAIN BOARD, COMPLETE (AEP,UK,EE)	
* 65	A-4417-128-A	MAIN BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS)	
* 65	A-4417-132-A	MAIN BOARD, COMPLETE (US,CND)	
* 66	4-924-098-91	HOLDER, PC BOARD	
* 67	A-4414-818-A	AUDIO BOARD, COMPLETE (AEP,UK,EE)	
* 67	A-4414-821-A	AUDIO BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS)	
* 67	A-4414-824-A	AUDIO BOARD, COMPLETE (US,CND)	
⚠68	1-569-008-21	ADAPTOR, CONVERSION 2P (MY,SP,JE)	
⚠69	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK,HK)	
* 70	4-988-533-01	HOLDER, PWB	
⚠CNP1601	1-696-847-11	CORD, POWER (AUS)	
⚠CNP1601	1-769-744-11	CORD, POWER (EXCEPT US,CND,AR,AUS)	
⚠CNP1601	1-783-532-11	CORD, POWER (US,CND)	
⚠CNP1601	1-783-941-11	CORD, POWER (AR)	
FAN901	1-698-997-11	FAN, D.C.	
⚠T1600	1-431-498-11	TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS)	
⚠T1600	1-431-988-11	TRANSFORMER, POWER (AEP,UK,EE)	
⚠T1600	1-431-989-11	TRANSFORMER, POWER (US,CND)	

8-3. MD MECHANISM DECK SECTION-1 (MDM-3J)



Ref. No.	Part No.	Description	Remark
* 101	A-4699-808-A	BD (MD) BOARD, COMPLETE	
102	1-660-966-11	OP RELAY FLEXIBLE BOARD	
103	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)	
104	X-4949-900-1	SHUTTER ASSY	
105	4-997-456-02	SHAFT (SHUTTER)(A)	
106	4-986-959-01	WASHER, STOPPER	
107	4-987-327-01	INSULATOR	
108	4-628-167-01	SCREW, STEP	
109	4-997-962-01	SPRING (O/C), TENSION	
110	1-783-113-11	WIRE (FLAT TYPE) (25 CORE)	

8-4. MD MECHANISM DECK SECTION-2 (MDM-3J)

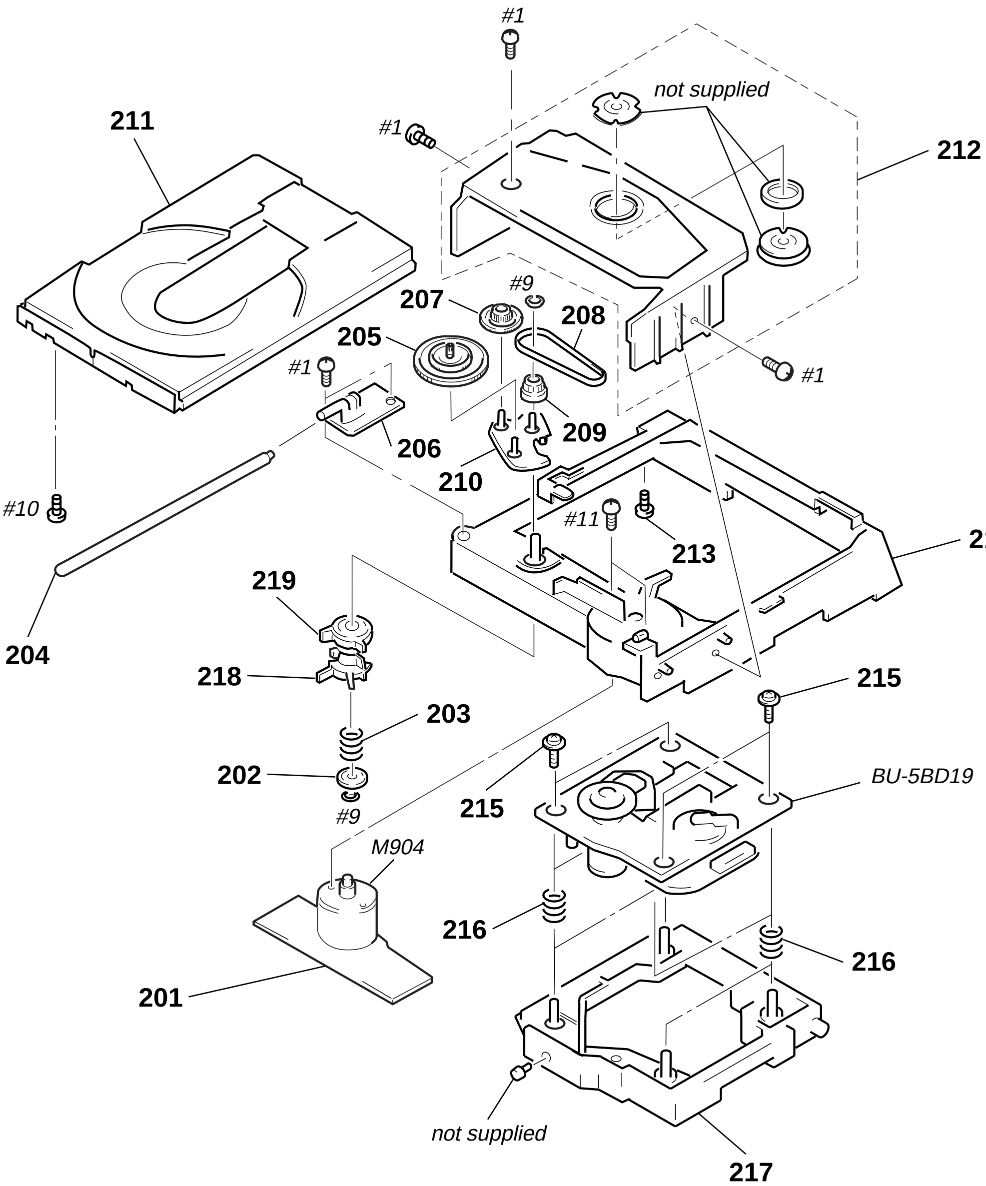


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	A-4672-138-A	SLIDER COMPLETE ASSY	
* 152	4-983-439-01	BRACKET (DAMPER)	
153	3-953-235-01	DAMPER, OIL	
154	4-979-901-21	LEVER (LIMITTER)	
155	3-342-375-11	SCREW (M1.7X1.4), SPECIAL	
156	4-979-890-11	RET AINER (GEAR)	
157	4-979-898-01	GEAR (LB)	
158	4-979-899-01	GEAR (LC)	
159	4-979-897-01	GEAR (LA)	
160	4-979-885-01	LEVER (HEAD UP)	
161	4-979-906-11	SPRING (LEAD SCREW)	
162	4-984-556-01	SHAFT (MAIN SHAFT)	
* 163	1-667-719-11	SW BOARD	

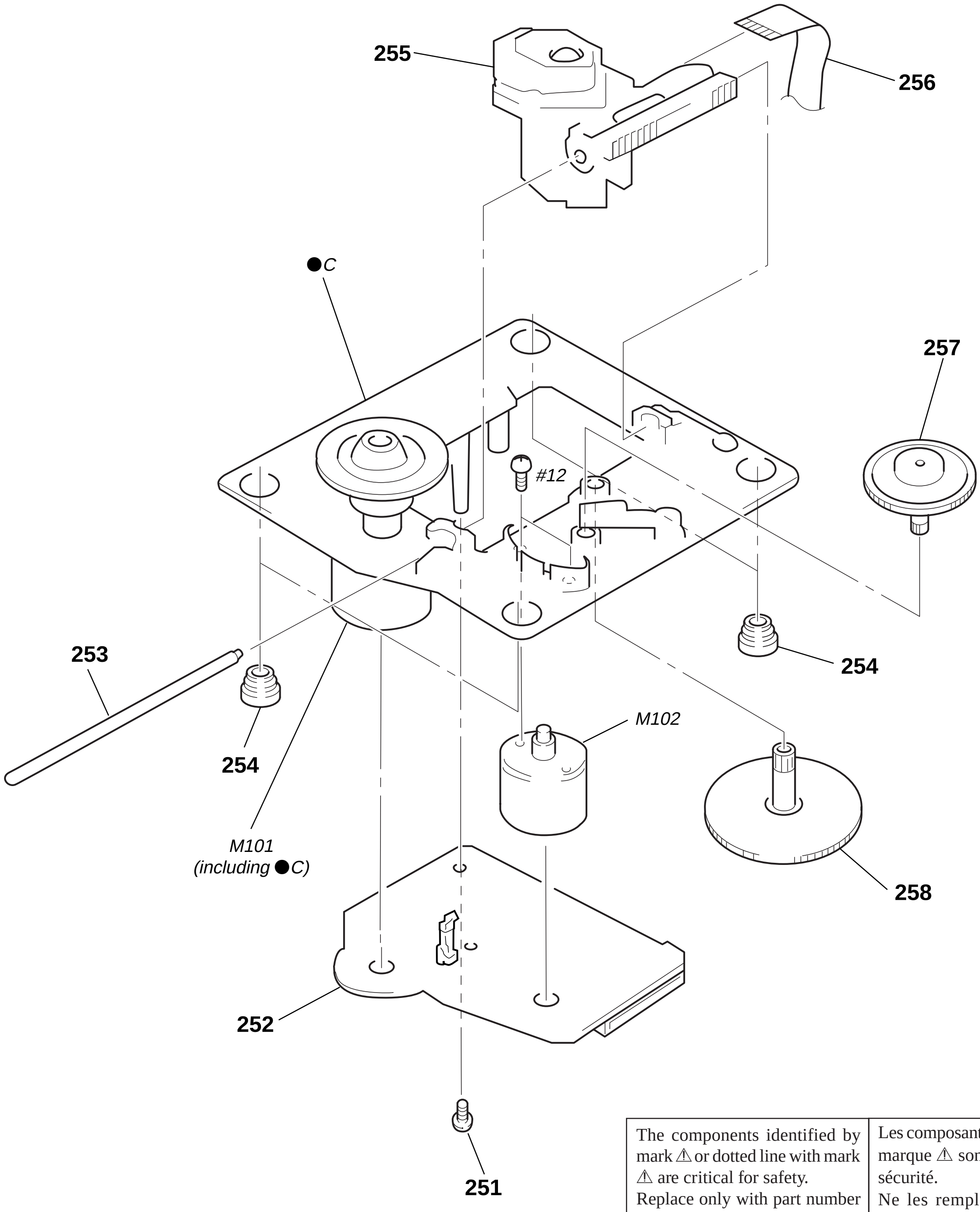
Ref. No.	Part No.	Description	Remark
164	A-3304-200-A	SCREW ASSY , LEAD	
165	4-963-914-02	RACK (INSER TER)	
166	3-366-890-11	SCREW (M1.4)	
⚠167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N (for MD)	
168	4-987-061-01	SPACER (RACK)	
169	4-988-560-01	SCREW (+P 1.7X6)	
170	4-955-841-11	SCREW	
171	4-979-914-01	SPRING (CLV), TORSION	
* 172	4-983-511-02	PIN (OUTSER T)	
* 173	4-983-437-01	SLIDER (CAM)	
HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)	
M901	A-4672-135-A	MOTOR ASSY , SPINDLE	
M902	A-4672-133-A	MOTOR ASSY , SLED	
M903	A-4672-134-A	MOTOR ASSY , LOADING (MD)	

8-5. CD MECHANISM DECK SECTION-1 (CDM13C-5BD19)



Ref. No.	Part No.	Description	Remark
* 201	1-634-461-11	LOADING BOARD	
202	4-927-654-01	WASHER (LIMITER)	
203	3-659-338-00	SPRING, COMPRESSION	
204	4-929-764-01	SHAFT (TABLE GUIDE)	
205	4-927-620-01	GEAR (P)	
206	4-944-006-11	BEARING	
207	4-927-628-01	GEAR (C)	
208	4-927-649-01	BELT	
209	4-929-724-01	PULLEY (B)	
210	X-4947-265-1	ARM ASSY, SWING	
211	4-944-012-01	TABLE, DISC	
212	A-4604-752-A	HOLDER (MG) ASSY	
* 213	4-917-583-21	BRACKET, YOKE	
* 214	X-4946-208-1	CHASSIS (MD) ASSY	
215	4-933-134-01	SCREW (+PTPWH M2.6X6)	
216	4-958-593-01	SPRING (BU), COMPRESSION	
217	4-929-747-01	HOLDER (BU)	
218	4-929-727-01	CAM (A)	
219	4-929-729-01	CAM (B)	
M904	A-4608-362-A	MOTOR (L) ASSY (LOADING) (CD)	

8-6. CD MECHANISM DECK SECTION-2 (BU-5BD19)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
251	4-951-620-01	SCREW (2.6X8), +BVTP	
* 252	A-4673-402-A	BD (CD) BOARD, COMPLETE	
253	4-917-565-01	SHAFT, SLED	
254	4-951-940-01	INSULATOR (BU)	
⚠255	8-848-379-31	OPTICAL PICK-UP KSS-213B/K-N (for CD)	
256	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
257	4-917-567-01	GEAR (M)	
258	4-917-564-01	GEAR (P), FLATNESS	
M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

AUDIO

SECTION 9
ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable

- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μ A..., uPA...: μ PA..., uPB...: μ PB..., uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H
- Abbreviation
  CND : Canadian model
  EE : East European model
  MY : Malaysia model
  SP : Singapore model
  JE : Tourist model
  HK : Hong Kong model
  AR : Argentine model
  AUS : Australian model

Ref. No.	Part No.	Description			Remark
*	A-4414-818-A	AUDIO BOARD, COMPLETE (AEP,UK,EE)			
		*********************			
*	A-4414-821-A	AUDIO BOARD, COMPLETE			
		*********************			(MY,SP,JE,HK,AR,AUS)
*	A-4414-824-A	AUDIO BOARD, COMPLETE (US,CND)			
		*********************			
		< CAPACITOR >			
C701	1-126-163-11	ELECT	4.7uF	20%	50V
C702	1-126-163-11	ELECT	4.7uF	20%	50V
C703	1-126-163-11	ELECT	4.7uF	20%	50V
C704	1-126-163-11	ELECT	4.7uF	20%	50V
C705	1-126-163-11	ELECT	4.7uF	20%	50V
C706	1-136-165-00	FILM	0.1uF	5%	50V
C707	1-124-464-11	ELECT	0.22uF	20%	50V
C708	1-130-473-00	MYLAR	0.0015uF	5%	50V
C709	1-126-160-11	ELECT	1uF	20%	50V
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V
C713	1-124-589-11	ELECT	47uF	20%	16V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-136-165-00	FILM	0.1uF	5%	50V
C716	1-124-261-00	ELECT	10uF	20%	50V
C717	1-126-163-11	ELECT	4.7uF	20%	50V
C718	1-162-290-31	CERAMIC	470PF	10%	50V
C719	1-124-589-11	ELECT	47uF	20%	16V
C720	1-124-589-11	ELECT	47uF	20%	16V
C731	1-130-475-00	MYLAR	0.0022uF	5%	50V
C743	1-124-589-11	ELECT	47uF	20%	16V
C751	1-126-163-11	ELECT	4.7uF	20%	50V
C752	1-126-163-11	ELECT	4.7uF	20%	50V
C753	1-126-163-11	ELECT	4.7uF	20%	50V
C754	1-126-163-11	ELECT	4.7uF	20%	50V
C755	1-126-163-11	ELECT	4.7uF	20%	50V
C756	1-136-165-00	FILM	0.1uF	5%	50V
C757	1-124-464-11	ELECT	0.22uF	20%	50V
C758	1-130-473-00	MYLAR	0.0015uF	5%	50V
C759	1-126-160-11	ELECT	1uF	20%	50V
C762	1-124-261-00	ELECT	10uF	20%	50V
C763	1-130-477-00	MYLAR	0.0033uF	5%	50V
C764	1-136-165-00	FILM	0.1uF	5%	50V
C765	1-136-165-00	FILM	0.1uF	5%	50V
C766	1-124-261-00	ELECT	10uF	20%	50V
C767	1-126-163-11	ELECT	4.7uF	20%	50V

Ref. No.	Part No.	Description			Remark
C768	1-162-290-31	CERAMIC	470PF	10%	50V
C769	1-162-294-31	CERAMIC	0.001uF	10%	50V
C781	1-130-475-00	MYLAR	0.0022uF	5%	50V
C1501	1-124-589-11	ELECT	47uF	20%	16V (AEP,UK,EE)
C1502	1-164-159-11	CERAMIC	0.1uF		50V (AEP,UK,EE)
C1503	1-126-157-11	ELECT	10uF	20%	16V (AEP,UK,EE)
C1504	1-162-291-31	CERAMIC	560PF	10%	50V (AEP,UK,EE)
C1505	1-126-157-11	ELECT	10uF	20%	16V (AEP,UK,EE)
C1506	1-124-257-00	ELECT	2.2uF	20%	50V (AEP,UK,EE)
C1507	1-102-518-11	CERAMIC	33PF	5%	50V (AEP,UK,EE)
C1508	1-162-288-31	CERAMIC	330PF	10%	50V (AEP,UK,EE)
C1509	1-102-518-11	CERAMIC	33PF	5%	50V (AEP,UK,EE)
C1510	1-162-306-11	CERAMIC	0.01uF	20%	16V (AEP,UK,EE)
C1511	1-162-291-31	CERAMIC	560PF	10%	50V (AEP,UK,EE)
C1512	1-162-306-11	CERAMIC	0.01uF	20%	16V (AEP,UK,EE)
C1513	1-162-301-11	CERAMIC	0.0015uF	20%	16V (AEP,UK,EE)
C1515	1-162-600-11	CERAMIC	0.0047uF	20%	16V (AEP,UK,EE)
		< CONNECTOR >			
CN701	1-779-819-11	CONNECTOR, BOARD TO BOARD 14P			
CN702	1-779-819-11	CONNECTOR, BOARD TO BOARD 14P			
		< DIODE >			
D701	8-719-911-19	DIODE 1SS119-25			
D1501	8-719-911-19	DIODE 1SS119-25 (AEP,UK,EE)			
		< IC >			
IC701	8-759-439-30	IC M62428FP			
IC702	8-759-634-51	IC M5218AP			
IC1500	8-759-450-87	IC BU1922F (AEP,UK,EE)			
IC1501	8-759-636-55	IC M5218AFP (AEP,UK,EE)			

Ref. No.	Part No.	Description				Remark
		< TRANSISTOR >				
Q701	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q702	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q703	8-729-422-57	TRANSISTOR	UN4111			
Q751	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q752	8-729-141-30	TRANSISTOR	2SC3623A-LK			
		< RESISTOR >				
R702	1-249-433-11	CARBON	22K	5%	1/4W	
R703	1-247-903-00	CARBON	1M	5%	1/4W	
R704	1-249-429-11	CARBON	10K	5%	1/4W	
R705	1-247-843-11	CARBON	3.3K	5%	1/4W	
R706	1-247-885-00	CARBON	180K	5%	1/4W	
R707	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R708	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R709	1-247-895-00	CARBON	470K	5%	1/4W	
R710	1-249-435-11	CARBON	33K	5%	1/4W	
R712	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R713	1-249-441-11	CARBON	100K	5%	1/4W	
R714	1-249-413-11	CARBON	470	5%	1/4W	F
R715	1-249-413-11	CARBON	470	5%	1/4W	F
R716	1-249-413-11	CARBON	470	5%	1/4W	F
R721	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R722	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R731	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R732	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R752	1-249-433-11	CARBON	22K	5%	1/4W	
R753	1-247-903-00	CARBON	1M	5%	1/4W	
R754	1-249-429-11	CARBON	10K	5%	1/4W	
R755	1-247-843-11	CARBON	3.3K	5%	1/4W	
R756	1-247-885-00	CARBON	180K	5%	1/4W	
R757	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R758	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R759	1-247-895-00	CARBON	470K	5%	1/4W	
R760	1-247-887-00	CARBON	220K	5%	1/4W	
R771	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R772	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R781	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R782	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R1501	1-247-807-31	CARBON	100	5%	1/4W	(AEP,UK,EE)
R1502	1-249-432-11	CARBON	18K	5%	1/4W	(AEP,UK,EE)
R1503	1-249-426-11	CARBON	5.6K	5%	1/4W	(AEP,UK,EE)
R1504	1-249-441-11	CARBON	100K	5%	1/4W	(AEP,UK,EE)
R1505	1-249-441-11	CARBON	100K	5%	1/4W	(AEP,UK,EE)
R1506	1-260-079-11	CARBON	22	5%	1/2W	(AEP,UK,EE)
R1507	1-249-417-11	CARBON	1K	5%	1/4W	F (AEP,UK,EE)
R1508	1-249-429-11	CARBON	10K	5%	1/4W	(AEP,UK,EE)
R1509	1-249-429-11	CARBON	10K	5%	1/4W	(AEP,UK,EE)
R1510	1-247-903-00	CARBON	1M	5%	1/4W	(AEP,UK,EE)

Ref. No.	Part No.	Description	Remark
		< VIBRATOR >	
X1501	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz)(AEP,UK,EE)	

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A-4673-402-A BD (CD) BOARD, COMPLETE
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Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C108	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C122	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C126	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC CXA1782BQ			
IC102	8-759-291-06	IC BA6397FP-T1			
IC103	8-752-372-94	IC CXD2507AQ			
IC104	8-759-185-29	IC PCM1710U-B			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-91	RES,CHIP	1K	5%	1/10W
R104	1-216-097-91	RES,CHIP	100K	5%	1/10W
R105	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-093-00	METAL CHIP	68K	5%	1/10W
R107	1-216-093-00	METAL CHIP	68K	5%	1/10W
R108	1-216-093-00	METAL CHIP	68K	5%	1/10W
R109	1-216-097-91	RES,CHIP	100K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-083-00	METAL CHIP	27K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R118	1-216-049-91	RES,CHIP	1K	5%	1/10W
R119	1-216-089-91	RES,CHIP	47K	5%	1/10W
R120	1-216-089-91	RES,CHIP	47K	5%	1/10W
R121	1-216-114-00	RES,CHIP	510K	5%	1/10W
R122	1-216-097-91	RES,CHIP	100K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R126	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R127	1-216-089-91	RES,CHIP	47K	5%	1/10W
R128	1-216-105-91	RES,CHIP	220K	5%	1/10W
R129	1-216-049-91	RES,CHIP	1K	5%	1/10W
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R134	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R135	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R138	1-216-049-91	RES,CHIP	1K	5%	1/10W
R139	1-216-033-00	METAL CHIP	220	5%	1/10W
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R143	1-216-121-91	RES,CHIP	1M	5%	1/10W

Ref. No.	Part No.	Description			Remark
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W
R145	1-216-097-91	RES,CHIP	100K	5%	1/10W
R146	1-216-097-91	RES,CHIP	100K	5%	1/10W
R147	1-216-049-91	RES,CHIP	1K	5%	1/10W
R148	1-216-049-91	RES,CHIP	1K	5%	1/10W
R149	1-216-049-91	RES,CHIP	1K	5%	1/10W
R150	1-216-037-00	METAL CHIP	330	5%	1/10W
R151	1-216-037-00	METAL CHIP	330	5%	1/10W
R152	1-216-037-00	METAL CHIP	330	5%	1/10W
R153	1-216-082-00	RES,CHIP	24K	5%	1/10W
R154	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R158	1-216-001-00	METAL CHIP	10	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-223-587-11	RES, ADJ, CARBON 22K			
RV102	1-223-587-11	RES, ADJ, CARBON 22K			
RV103	1-223-587-11	RES, ADJ, CARBON 22K			
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
		< VIBRATOR >			
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)			

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Ref. No.	Part No.	Description			Remark
*	A-4699-808-A	BD (MD) BOARD, COMPLETE ************************			
		< CAPACITOR >			
C101	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C104	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C105	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C110	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C113	1-164-346-11	CERAMIC CHIP	1uF		16V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C118	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C119	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C128	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V

Ref. No.	Part No.	Description			Remark
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C152	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C153	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C156	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
C163	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C164	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C168	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C169	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20%	10V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C188	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C191	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C192	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C201	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C202	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C203	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C205	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C206	1-115-363-11	CERAMIC CHIP	10uF		10V
C207	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C208	1-115-363-11	CERAMIC CHIP	10uF		10V
C209	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C210	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C212	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C213	1-115-363-11	CERAMIC CHIP	10uF		10V
C214	1-115-363-11	CERAMIC CHIP	10uF		10V
C216	1-124-779-00	ELECT CHIP	10uF	20%	16V
C350	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C352	1-124-779-00	ELECT CHIP	10uF	20%	16V
C353	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C354	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C355	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C357	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C358	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C359	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C361	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C362	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C363	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C401	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C402	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C2001	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C2002	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C2003	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C2004	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P			
CN104	1-778-283-11	CONNECTOR, FFC/FPC 4P			
CN106	1-774-771-11	CONNECTOR, FFC/FPC 14P			
CN107	1-779-854-11	CONNECTOR, FFC/FPC 25P			
		< DIODE >			
D101	8-719-988-62	DIODE 1SS355			
D181	8-719-046-86	DIODE F1J6TP			
D183	8-719-046-86	DIODE F1J6TP			
		< IC >			
IC101	8-752-080-95	IC CXA2523AR			
IC103	8-729-903-10	IC TRANSISTOR FMW1			
IC121	8-752-384-47	IC CXD2652AR			
IC124	8-759-536-21	IC MSM51V4400D-10TSK-FS			
IC152	8-759-430-25	IC BH6511FS-E2			
IC153	8-759-481-19	IC LB1830M-S-TE-L			
IC171	8-759-484-73	IC BR24C01AF-E2			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC192	8-759-460-72	IC BA033FP-E2			
IC201	8-759-471-38	IC AK4520A-VF-E2			
IC316	8-759-568-55	IC M30610MCA-272FP			
IC401	8-759-242-70	IC TC7WU04F			
		< COIL >			
L101	1-414-235-11	INDUCTOR CHIP	0uH		
L102	1-414-235-11	INDUCTOR CHIP	0uH		
L103	1-414-235-11	INDUCTOR CHIP	0uH		
L105	1-414-235-11	INDUCTOR CHIP	0uH		
L106	1-414-235-11	INDUCTOR CHIP	0uH		
L121	1-414-235-11	INDUCTOR CHIP	0uH		
L122	1-414-235-11	INDUCTOR CHIP	0uH		
L151	1-412-622-51	INDUCTOR	10uH		
L152	1-412-622-51	INDUCTOR	10uH		
L153	1-412-039-51	INDUCTOR CHIP	100uH		
L154	1-412-039-51	INDUCTOR CHIP	100uH		
L161	1-414-235-11	INDUCTOR CHIP	0uH		
L162	1-414-235-11	INDUCTOR CHIP	0uH		
L181	1-424-675-11	INDUCTOR	0uH		
L201	1-412-776-11	INDUCTOR	1uH		
L301	1-414-235-11	INDUCTOR CHIP	0uH		
L351	1-216-295-91	SHORT 0			
L401	1-216-025-91	RES,CHIP 100 5% 1/10W			
L1001	1-500-445-21	FERRITE 0uH			

BD (MD)

Ref. No.	Part No.	Description				Remark
		< TRANSISTOR >				
Q101	8-729-028-91	TRANSISTOR	RT1P441M-TP-1			
Q102	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR			
Q103	8-729-028-99	TRANSISTOR	RT1N144M-TP-1			
Q104	8-729-028-99	TRANSISTOR	RT1N144M-TP-1			
Q162	8-729-101-07	TRANSISTOR	2SB798-DL			
Q163	8-729-028-91	TRANSISTOR	RT1P441M-TP-1			
Q181	8-729-018-75	TRANSISTOR	2SJ278MY			
Q182	8-729-017-65	TRANSISTOR	2SK1764KY			
Q350	8-729-028-99	TRANSISTOR	RT1N144M-TP-1			
		< RESISTOR >				
R101	1-216-025-91	RES,CHIP	100	5%	1/10W	
R103	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R105	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W	
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R112	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R113	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R115	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R121	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R125	1-216-025-91	RES,CHIP	100	5%	1/10W	
R128	1-216-041-00	METAL CHIP	470	5%	1/10W	
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R132	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R133	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R134	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R136	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R137	1-216-025-91	RES,CHIP	100	5%	1/10W	
R140	1-216-029-00	METAL CHIP	150	5%	1/10W	
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R144	1-216-025-91	RES,CHIP	100	5%	1/10W	
R146	1-216-037-00	METAL CHIP	330	5%	1/10W	
R147	1-216-025-91	RES,CHIP	100	5%	1/10W	
R148	1-216-045-00	METAL CHIP	680	5%	1/10W	
R158	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R159	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R164	1-216-033-00	METAL CHIP	220	5%	1/10W	
R165	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R166	1-220-149-11	REGISTER	2.2	10%	1/2W	
R167	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R169	1-219-724-11	METAL CHIP	1	1%	1/4W	
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R175	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R178	1-216-295-91	SHORT	0			
R179	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R182	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R183	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R195	1-216-295-91	SHORT	0			
R196	1-216-295-91	SHORT	0			
R197	1-216-295-91	SHORT	0			
R198	1-216-295-91	SHORT	0			
R199	1-216-295-91	SHORT	0			
R200	1-216-295-91	SHORT	0			
R202	1-216-041-00	METAL CHIP	470	5%	1/10W	
R203	1-216-025-91	RES,CHIP	100	5%	1/10W	
R204	1-216-025-91	RES,CHIP	100	5%	1/10W	
R210	1-216-041-00	METAL CHIP	470	5%	1/10W	
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R331	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R332	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R333	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R351	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R352	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R356	1-216-025-91	RES,CHIP	100	5%	1/10W	
R361	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R362	1-216-025-91	RES,CHIP	100	5%	1/10W	
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R366	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R367	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R380	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R381	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R382	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R383	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R386	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R387	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R388	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R389	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R391	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R393	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R400	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R401	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R402	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R405	1-216-063-91	RES,CHIP	3.9K	5%	1/10W	
R420	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R421	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R422	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R423	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R424	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R425	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R429	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R430	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R431	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R432	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R433	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R434	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R435	1-216-097-91	RES,CHIP	100K	5%	1/10W	

Ref. No.	Part No.	Description			Remark
R438	1-216-097-91	RES,CHIP	100K	5%	1/10W
R439	1-216-097-91	RES,CHIP	100K	5%	1/10W
R440	1-216-097-91	RES,CHIP	100K	5%	1/10W
R441	1-216-097-91	RES,CHIP	100K	5%	1/10W
R442	1-216-097-91	RES,CHIP	100K	5%	1/10W
R443	1-216-097-91	RES,CHIP	100K	5%	1/10W
R444	1-216-097-91	RES,CHIP	100K	5%	1/10W
R445	1-216-097-91	RES,CHIP	100K	5%	1/10W
R448	1-216-097-91	RES,CHIP	100K	5%	1/10W
R449	1-216-097-91	RES,CHIP	100K	5%	1/10W
R451	1-216-097-91	RES,CHIP	100K	5%	1/10W
R454	1-216-097-91	RES,CHIP	100K	5%	1/10W
R455	1-216-097-91	RES,CHIP	100K	5%	1/10W
R456	1-216-097-91	RES,CHIP	100K	5%	1/10W
R457	1-216-097-91	RES,CHIP	100K	5%	1/10W
R458	1-216-097-91	RES,CHIP	100K	5%	1/10W
R460	1-216-073-00	METAL CHIP	10K	5%	1/10W
R462	1-216-073-00	METAL CHIP	10K	5%	1/10W
R502	1-216-295-91	SHORT	0		
R504	1-216-295-91	SHORT	0		
R600	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R602	1-216-025-91	RES,CHIP	100	5%	1/10W
R603	1-216-025-91	RES,CHIP	100	5%	1/10W
R604	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R605	1-216-025-91	RES,CHIP	100	5%	1/10W
R606	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R607	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R608	1-216-025-91	RES,CHIP	100	5%	1/10W
R2001	1-216-001-00	METAL CHIP	10	5%	1/10W
R2002	1-216-296-91	SHORT	0		
		< VIBRATOR >			
X101	1-767-286-11	VIBRATOR, CRYSTAL (22.5792MHz)			
X302	1-767-670-11	VIBRATOR, CERAMIC (7MHz)			

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Ref. No.	Part No.	Description			Remark
*	1-671-020-21	HP BOARD ********			
		< CAPACITOR >			
C1401	1-162-294-31	CERAMIC	0.001uF	10%	50V
C1402	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< JACK >			
J1400	1-764-106-21	JACK (PHONES)			

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Ref. No.	Part No.	Description			Remark
*	A-4414-823-A	JACK BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) ********************			
*	A-4414-826-A	JACK BOARD, COMPLETE (US,CND) ********************			
*	A-4414-830-A	JACK BOARD, COMPLETE (AEP,UK,EE) ********************			
		< CAPACITOR >			
C401	1-162-282-21	CERAMIC	100PF	10%	50V
C411	1-162-282-31	CERAMIC	100PF	10%	50V
C412	1-162-290-31	CERAMIC	470PF	10%	50V
C413	1-126-964-11	ELECT	10uF	20%	50V
C421	1-162-282-31	CERAMIC	100PF	10%	50V
C422	1-162-282-31	CERAMIC	100PF	10%	50V
C431	1-126-934-11	ELECT	220uF	20%	10V
C432	1-126-933-11	ELECT	100uF	20%	16V
C448	1-136-165-00	FILM	0.1uF	5%	50V (AEP,UK,EE)
C449	1-136-165-00	FILM	0.1uF	5%	50V (AEP,UK,EE)
C498	1-136-165-00	FILM	0.1uF	5%	50V (AEP,UK,EE)
C499	1-136-165-00	FILM	0.1uF	5%	50V (AEP,UK,EE)
C451	1-162-282-31	CERAMIC	100PF	10%	50V
C461	1-162-282-31	CERAMIC	100PF	10%	50V
C462	1-162-290-31	CERAMIC	470PF	10%	50V
C463	1-126-964-11	ELECT	10uF	20%	50V
C473	1-136-173-00	FILM	0.47uF	5%	50V
		< CONNECTOR >			
* CN401	1-568-858-11	SOCKET, CONNECTOR 15P			
CN402	1-564-506-11	PLUG, CONNECTOR 3P			
CN404	1-770-379-11	CONNECTOR, BOARD TO BOARD 6P			
* CN420	1-565-561-11	PIN, CONNECTOR 3P			
* CN430	1-565-500-11	CONNECTOR, BOARD TO BOARD 9P			
* CN490	1-568-943-11	PIN, CONNECTOR 5P			
		< DIODE >			
D422	8-719-911-19	DIODE 1SS119-25			
D430	8-719-911-19	DIODE 1SS119-25			
D447	8-719-911-19	DIODE 1SS119-25			
D497	8-719-911-19	DIODE 1SS119-25			
		< JACK >			
J401	1-764-767-21	JACK, PIN 2P (TAPE INPUT)			
J402	1-764-767-21	JACK, PIN 2P (TAPE OUTPUT)			
		< COIL >			
L448	1-420-872-00	COIL, AIR-CORE			
L498	1-420-872-00	COIL, AIR-CORE			
		< TRANSISTOR >			
Q400	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q410	8-729-141-30	TRANSISTOR 2SC3623A-LK			
Q420	8-729-620-05	TRANSISTOR 2SC2603-EF			

Ref. No.	Part No.	Description				Remark
Q431	8-729-900-80	TRANSISTOR	DTC114ES			
Q432	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q433	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q434	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q435	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q436	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q450	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q460	8-729-141-30	TRANSISTOR	2SC3623A-LK			
		< RESISTOR >				
R401	1-249-417-11	CARBON	1K	5%	1/4W	F
R402	1-249-441-11	CARBON	100K	5%	1/4W	
R403	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R404	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R405	1-249-429-11	CARBON	10K	5%	1/4W	
R411	1-249-441-11	CARBON	100K	5%	1/4W	
R412	1-249-417-11	CARBON	1K	5%	1/4W	F
R413	1-249-429-11	CARBON	10K	5%	1/4W	
R414	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R415	1-249-441-11	CARBON	100K	5%	1/4W	
R421	1-249-393-11	CARBON	10	5%	1/4W	F
R422	1-249-429-11	CARBON	10K	5%	1/4W	
R423	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R424	1-249-831-11	CARBON	1K	5%	1/4W	
R431	1-249-437-11	CARBON	47K	5%	1/4W	
R433	1-249-433-11	CARBON	22K	5%	1/4W	
R434	1-249-431-11	CARBON	15K	5%	1/4W	
R435	1-249-437-11	CARBON	47K	5%	1/4W	
R436	1-249-433-11	CARBON	22K	5%	1/4W	
R437	1-249-417-11	CARBON	1K	5%	1/4W	F
⚠R444	1-215-914-11	METAL OXIDE	330	5%	3W	F
			(US,CND,MY,SP,JE,HK,AR,AUS)			
⚠R444	1-216-478-11	METAL OXIDE	390	5%	3W	F
					(AEP,UK,EE)	
R445	1-260-089-11	CARBON	150	5%	1/2W	
R446	1-260-089-11	CARBON	150	5%	1/2W	
R447	1-249-431-11	CARBON	15K	5%	1/4W	
R448	1-260-076-11	CARBON	10	5%	1/2W	
R449	1-260-076-11	CARBON	10	5%	1/2W	
					(AEP,UK,EE)	
R451	1-249-417-11	CARBON	1K	5%	1/4W	F
R452	1-249-441-11	CARBON	100K	5%	1/4W	
R453	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R454	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R455	1-249-429-11	CARBON	10K	5%	1/4W	
R461	1-249-441-11	CARBON	100K	5%	1/4W	
R462	1-249-417-11	CARBON	1K	5%	1/4W	F
R463	1-249-429-11	CARBON	10K	5%	1/4W	
R464	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R465	1-249-441-11	CARBON	100K	5%	1/4W	
R495	1-260-089-11	CARBON	150	5%	1/2W	
R496	1-260-089-11	CARBON	150	5%	1/2W	
R497	1-249-431-11	CARBON	15K	5%	1/4W	
R498	1-260-076-11	CARBON	10	5%	1/2W	
R499	1-260-076-11	CARBON	10	5%	1/2W	
					(AEP,UK,EE)	

Ref. No.	Part No.	Description			Remark
		< RELAY >			
RY430	1-515-833-11	RELAY			
		< TERMINAL >			
TM440	1-537-238-31	TERMINAL BOARD (SPEAKER)			

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*	1-634-461-11	LOADING BOARD *************			
		< CONNECTOR >			
* CN291	1-564-498-11	PIN, CONNECTOR 5P			
		< SWITCH >			
S291	1-571-924-11	SWITCH, LEAF (LOAD OUT)			
S292	1-571-924-11	SWITCH, LEAF (LOAD IN)			

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*	A-4417-124-A	MAIN BOARD, COMPLETE (AEP,UK,EE) ********************			
*	A-4417-128-A	MAIN BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) ********************			
*	A-4417-132-A	MAIN BOARD, COMPLETE (US,CND) ********************			
		< CAPACITOR >			
C501	1-128-548-11	ELECT	4700uF	20%	25V
C502	1-104-665-11	ELECT	100uF	20%	25V
C503	1-136-165-00	FILM	0.1uF	5%	50V
C504	1-136-165-00	FILM	0.1uF	5%	50V
C511	1-126-795-11	ELECT	10uF	20%	25V
C512	1-126-767-11	ELECT	1000uF	20%	16V
C513	1-162-306-11	CERAMIC	0.01uF	20%	16V
C514	1-126-926-11	ELECT	1000uF	20%	10V
C515	1-126-934-11	ELECT	220uF	20%	16V
C516	1-126-933-11	ELECT	100uF	20%	16V
C522	1-126-934-11	ELECT	220uF	20%	16V
C523	1-126-934-11	ELECT	220uF	20%	16V
C525	1-126-933-11	ELECT	100uF	20%	16V
C531	1-126-969-11	ELECT	220uF	20%	50V
C532	1-126-969-11	ELECT	220uF	20%	50V
C533	1-126-969-11	ELECT	220uF	20%	50V
C535	1-126-964-11	ELECT	10uF	20%	50V
C536	1-126-947-11	ELECT	47uF	20%	35V
C550	1-117-850-11	ELECT	15000uF	20%	16V
C551	1-136-165-00	FILM	0.1uF	5%	50V
C552	1-136-165-00	FILM	0.1uF	5%	50V
C561	1-126-791-11	ELECT	10uF	20%	16V
C562	1-126-916-11	ELECT	1000uF	20%	6.3V
C563	1-162-306-11	CERAMIC	0.01uF	20%	16V
C564	1-126-964-11	ELECT	10uF	20%	50V
C565	1-126-916-11	ELECT	1000uF	20%	6.3V
C566	1-126-916-11	ELECT	1000uF	20%	6.3V
C572	1-126-960-11	ELECT	1uF	20%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
C573	1-126-965-11	ELECT	22uF	20%	50V
C574	1-126-934-11	ELECT	220uF	20%	10V
C575	1-126-934-11	ELECT	220uF	20%	10V
C576	1-126-964-11	ELECT	10uF	20%	50V
C577	1-126-934-11	ELECT	220uF	20%	10V
C578	1-164-159-11	CERAMIC	0.1uF		50V
C579	1-110-489-11	CAPACITOR	1F		5.5V
C580	1-126-933-11	ELECT	100uF	20%	16V
C591	1-126-163-11	ELECT	4.7uF	20%	50V
C592	1-164-159-11	CERAMIC	0.1uF		50V
C602	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-126-960-11	ELECT	1uF	20%	50V
C608	1-124-261-00	ELECT	10uF	20%	50V
C612	1-124-589-11	ELECT	47uF	20%	16V
C613	1-162-306-11	CERAMIC	0.01uF	20%	16V
C614	1-102-514-11	CERAMIC	22PF	5%	50V
C615	1-102-958-00	CERAMIC	20PF	5%	50V
C616	1-124-589-11	ELECT	47uF	20%	16V
C617	1-162-294-31	CERAMIC	0.001uF	10%	50V
C618	1-136-165-00	FILM	0.1uF	5%	50V
C619	1-136-165-00	FILM	0.1uF	5%	50V
C620	1-136-165-00	FILM	0.1uF	5%	50V
C621	1-124-589-11	ELECT	47uF	20%	16V
C622	1-125-623-11	DOUBLE LAYER	0.22F	0	5.5V
C807	1-164-159-11	CERAMIC	0.1uF		50V
C808	1-104-664-11	ELECT	47uF	20%	16V
C809	1-126-925-11	ELECT	470uF	20%	10V
C814	1-162-306-11	CERAMIC	0.01uF	20%	16V
C815	1-162-306-11	CERAMIC	0.01uF	20%	16V
C816	1-162-306-11	CERAMIC	0.01uF	20%	16V
C817	1-104-664-11	ELECT	47uF	20%	16V
C821	1-124-261-00	ELECT	10uF	20%	50V
C822	1-162-290-31	CERAMIC	470PF	10%	50V
C823	1-126-916-11	ELECT	1000uF	20%	6.3V
C831	1-124-261-00	ELECT	10uF	20%	50V
C832	1-162-290-31	CERAMIC	470PF	10%	50V
C833	1-126-964-11	ELECT	10uF	20%	50V
C834	1-162-306-11	CERAMIC	0.01uF	20%	16V
C835	1-162-285-31	CERAMIC	180PF	10%	50V
C837	1-126-925-11	ELECT	470uF	20%	10V
C839	1-162-282-31	CERAMIC	100PF	10%	50V
C841	1-164-159-11	CERAMIC	0.1uF		50V
C842	1-164-159-11	CERAMIC	0.1uF		50V
C871	1-126-163-11	ELECT	4.7uF	20%	50V
C872	1-126-163-11	ELECT	4.7uF	20%	50V
C881	1-126-959-11	ELECT	0.47uF	20%	50V
		< CONNECTOR >			
CN503	1-564-511-11	PLUG, CONNECTOR 8P			
CN506	1-770-412-11	CONNECTOR, BOARD TO BOARD 6P			
CN590	1-564-506-11	PLUG, CONNECTOR 3P			
CN801	1-770-067-11	CONNECTOR, FFC/FPC 19P			
* CN802	1-564-339-00	PIN, CONNECTOR 5P			
CN820	1-770-653-11	CONNECTOR, FFC/FPC 25P			
CN850	1-691-648-11	SOCKET, CONNECTOR 15P			
CN870	1-568-834-11	SOCKET, CONNECTOR 15P			
CN871	1-779-820-11	CONNECTOR, BOARD TO BOARD 14P			

Ref. No.	Part No.	Description	Remark
CN872	1-779-820-11	CONNECTOR, BOARD TO BOARD 14P	
* CN873	1-568-839-11	SOCKET, CONNECTOR 23P	
		< DIODE >	
D501	8-719-200-82	DIODE 11ES2	
D502	8-719-200-82	DIODE 11ES2	
D503	8-719-200-82	DIODE 11ES2	
D504	8-719-200-82	DIODE 11ES2	
D511	8-719-110-09	DIODE RD8.2ES-B3	
D521	8-719-929-15	DIODE MZS9.1NB2	
D531	8-719-200-82	DIODE 11ES2	
D532	8-719-200-82	DIODE 11ES2	
D533	8-719-200-82	DIODE 11ES2	
D534	8-719-983-88	DIODE MTZJ-T-72-33C	
D551	8-719-200-02	DIODE 10E2	
D552	8-719-200-02	DIODE 10E2	
D553	8-719-200-02	DIODE 10E2	
D554	8-719-200-02	DIODE 10E2	
D561	8-719-200-82	DIODE 11ES2	
D562	8-719-911-19	DIODE 1SS119-25	
D563	8-719-200-82	DIODE 11ES2	
D571	8-719-911-19	DIODE 1SS119-25	
D572	8-719-911-19	DIODE 1SS119-25	
D581	8-719-911-19	DIODE 1SS119-25	
D582	8-719-911-19	DIODE 1SS119-25	
D591	8-719-921-80	DIODE MTZJ-11B	
D601	8-719-911-19	DIODE 1SS119-25	
D602	8-719-911-19	DIODE 1SS119-25	
D603	8-719-200-82	DIODE 11ES2	
D604	8-719-200-82	DIODE 11ES2	
D605	8-719-911-19	DIODE 1SS119-25	
D801	8-719-911-19	DIODE 1SS119-25	
D802	8-719-911-19	DIODE 1SS119-25	
D803	8-719-921-40	DIODE MTZJ-4.7C	
D881	8-719-911-19	DIODE 1SS119-25	
D882	8-719-911-19	DIODE 1SS119-25	
		< GROUND TERMINAL >	
EPT501	1-537-770-21	TERMINAL BOARD, GROUND	
		< FERRITE BEAD >	
FB802	1-412-473-21	INDUCTOR 0UH	
FB803	1-412-473-21	INDUCTOR 0UH	
FB805	1-412-473-21	INDUCTOR 0UH	
FB806	1-412-473-21	INDUCTOR 0UH	
		< IC >	
IC510	8-759-604-32	IC M5F7810	
IC511	8-759-604-86	IC M5F7807L	
IC560	8-759-450-47	IC BA05T	
IC570	8-759-426-96	IC LA5620	
IC601	8-759-545-08	IC uPD78078GF-083-3BA	
IC602	8-759-635-63	IC M51943BSL	
IC603	8-759-481-02	IC M62016L	
IC801	8-759-822-09	IC LB1641	
IC840	8-759-269-09	IC SN74HCT04ANS	

MAIN

Ref. No.	Part No.	Description				Remark
IC842	8-759-267-86	IC SN74HC00ANS-E20				
		< COIL >				
L523	1-408-117-00	INDUCTOR	10uH			
L601	1-410-509-11	INDUCTOR	10uH			
L739	1-410-470-11	INDUCTOR	10uH			
		< TRANSISTOR >				
Q510	8-729-111-29	TRANSISTOR	2SD1616A-K			
Q520	8-729-118-00	TRANSISTOR	2SB1116-L			
Q521	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q530	8-729-018-59	TRANSISTOR	2SB1375-LC (LB-SONY)			
Q561	8-729-118-01	TRANSISTOR	2SB1116			
Q562	8-729-422-73	TRANSISTOR	UN4212			
Q571	8-729-422-57	TRANSISTOR	UN4111			
Q572	8-729-900-80	TRANSISTOR	DTC114ES			
Q591	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q592	8-729-021-82	TRANSISTOR	2SD2396K			
Q601	8-729-900-80	TRANSISTOR	DTC114ES			
Q602	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q871	8-729-422-57	TRANSISTOR	UN4111			
Q872	8-729-422-57	TRANSISTOR	UN4111			
		< RESISTOR >				
⚠R510	1-219-786-11	FUSIBLE	22	5%	1/4W	F
R511	1-249-413-11	CARBON	470	5%	1/4W	F
⚠R520	1-219-786-11	FUSIBLE	22	5%	1/4W	F
R521	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R522	1-249-417-11	CARBON	1K	5%	1/4W	F
⚠R530	1-219-153-11	FUSIBLE	10	5%	1/4W	F
R531	1-260-095-11	CARBON	470	5%	1/2W	
R562	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R563	1-249-409-11	CARBON	220	5%	1/4W	F
R564	1-247-843-11	CARBON	3.3K	5%	1/4W	
R571	1-249-437-11	CARBON	47K	5%	1/4W	
R572	1-249-437-11	CARBON	47K	5%	1/4W	
R573	1-249-437-11	CARBON	47K	5%	1/4W	
R576	1-249-429-11	CARBON	10K	5%	1/4W	
R581	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R582	1-249-425-11	CARBON	4.7K	5%	1/4W	F
⚠R590	1-217-640-11	FUSIBLE	3.3	5%	1/4W	F
R591	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R592	1-249-441-11	CARBON	100K	5%	1/4W	
R593	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R601	1-249-429-11	CARBON	10K	5%	1/4W	
R602	1-247-807-31	CARBON	100	5%	1/4W	
R603	1-249-429-11	CARBON	10K	5%	1/4W	
R604	1-247-807-31	CARBON	100	5%	1/4W	
R605	1-249-417-11	CARBON	1K	5%	1/4W	F
R606	1-247-807-31	CARBON	100	5%	1/4W	
R607	1-247-807-31	CARBON	100	5%	1/4W	
R608	1-247-807-31	CARBON	100	5%	1/4W	
R609	1-247-807-31	CARBON	100	5%	1/4W	
R610	1-247-807-31	CARBON	100	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	1-247-807-31	CARBON	100	5%	1/4W	
R613	1-247-807-31	CARBON	100	5%	1/4W	
R614	1-247-807-31	CARBON	100	5%	1/4W	
R615	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R616	1-247-843-11	CARBON	3.3K	5%	1/4W	
R617	1-249-413-11	CARBON	470	5%	1/4W	F
R618	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R619	1-247-843-11	CARBON	3.3K	5%	1/4W	
R620	1-249-413-11	CARBON	470	5%	1/4W	F
R621	1-247-843-11	CARBON	3.3K	5%	1/4W	
R622	1-247-807-31	CARBON	100	5%	1/4W	
R623	1-247-807-31	CARBON	100	5%	1/4W	
R624	1-249-429-11	CARBON	10K	5%	1/4W	
R625	1-249-429-11	CARBON	10K	5%	1/4W	
R626	1-247-807-31	CARBON	100	5%	1/4W	
R627	1-247-807-31	CARBON	100	5%	1/4W	
R628	1-249-429-11	CARBON	10K	5%	1/4W	
R630	1-249-429-11	CARBON	10K	5%	1/4W	
R631	1-249-433-11	CARBON	22K	5%	1/4W	
R632	1-249-437-11	CARBON	47K	5%	1/4W	
R633	1-249-437-11	CARBON	47K	5%	1/4W	
R634	1-249-429-11	CARBON	10K	5%	1/4W	
R635	1-247-807-31	CARBON	100	5%	1/4W	
R636	1-247-807-31	CARBON	100	5%	1/4W	
R637	1-247-807-31	CARBON	100	5%	1/4W	
R638	1-247-807-31	CARBON	100	5%	1/4W	
R639	1-247-807-31	CARBON	100	5%	1/4W	
R640	1-247-807-31	CARBON	100	5%	1/4W	
R641	1-247-807-31	CARBON	100	5%	1/4W	
R642	1-247-807-31	CARBON	100	5%	1/4W	
R643	1-247-807-31	CARBON	100	5%	1/4W	
R644	1-247-807-31	CARBON	100	5%	1/4W	
R645	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R646	1-247-843-11	CARBON	3.3K	5%	1/4W	
R647	1-249-429-11	CARBON	10K	5%	1/4W	
R648	1-249-413-11	CARBON	470	5%	1/4W	F
R649	1-247-891-00	CARBON	330K	5%	1/4W	
R650	1-249-417-11	CARBON	1K	5%	1/4W	F
R651	1-249-417-11	CARBON	1K	5%	1/4W	F
R652	1-249-417-11	CARBON	1K	5%	1/4W	F
R653	1-249-417-11	CARBON	1K	5%	1/4W	F
R654	1-249-417-11	CARBON	1K	5%	1/4W	F
R655	1-249-417-11	CARBON	1K	5%	1/4W	F
R656	1-249-417-11	CARBON	1K	5%	1/4W	F
R801	1-249-417-11	CARBON	1K	5%	1/4W	F
R807	1-247-807-31	CARBON	100	5%	1/4W	
R821	1-249-441-11	CARBON	100K	5%	1/4W	
R822	1-249-417-11	CARBON	1K	5%	1/4W	F
R825	1-249-429-11	CARBON	10K	5%	1/4W	
R826	1-249-429-11	CARBON	10K	5%	1/4W	
R831	1-249-441-11	CARBON	100K	5%	1/4W	
R832	1-249-417-11	CARBON	1K	5%	1/4W	F
R851	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R852	1-249-431-11	CARBON	15K	5%	1/4W	
R861	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R862	1-249-431-11	CARBON	15K	5%	1/4W	
R871	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R872	1-249-441-11	CARBON	100K	5%	1/4W	
R873	1-247-887-00	CARBON	220K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R874	1-249-421-11	CARBON	2.2K	5%	1/4W F
R875	1-249-441-11	CARBON	100K	5%	1/4W
R876	1-247-887-00	CARBON	220K	5%	1/4W
R881	1-247-903-00	CARBON	1M	5%	1/4W
		< VIBRATOR >			
X601	1-760-489-11	VIBRATOR, CERAMIC (5MHz)			
X602	1-567-098-41	VIBRATOR, CRYSTAL (32kHz)			

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Ref. No.	Part No.	Description	Remark
*	1-670-745-21	MD LED BOARD ************	
		< DIODE >	
D905	8-719-057-09	DIODE LNJ801LPDJA (MD INDICATOR)	

****

Ref. No.	Part No.	Description			Remark
*	A-4417-317-A	PANEL BOARD, COMPLETE *********************			
*	4-993-866-21	HOLDER (FL)			
		< CAPACITOR >			
C901	1-162-306-11	CERAMIC	0.01uF	20%	16V
C902	1-162-306-11	CERAMIC	0.01uF	20%	16V
C903	1-126-160-11	ELECT	1uF	20%	50V
C923	1-164-159-11	CERAMIC	0.1uF		50V
C935	1-124-261-00	ELECT	10uF	20%	50V
C936	1-124-234-00	ELECT	22uF	20%	16V
C937	1-164-159-11	CERAMIC	0.1uF		50V
C940	1-162-282-31	CERAMIC	100PF	10%	50V
C946	1-164-159-11	CERAMIC	0.1uF		50V
C948	1-162-286-31	CERAMIC	220PF	10%	50V
C949	1-162-286-31	CERAMIC	220PF	10%	50V
C950	1-162-286-31	CERAMIC	220PF	10%	50V
C951	1-162-286-31	CERAMIC	220PF	10%	50V
C952	1-162-286-31	CERAMIC	220PF	10%	50V
C953	1-162-286-31	CERAMIC	220PF	10%	50V
C954	1-162-286-31	CERAMIC	220PF	10%	50V
C955	1-162-286-31	CERAMIC	220PF	10%	50V
C956	1-162-286-31	CERAMIC	220PF	10%	50V
C957	1-162-286-31	CERAMIC	220PF	10%	50V
C958	1-162-286-31	CERAMIC	220PF	10%	50V
C959	1-162-286-31	CERAMIC	220PF	10%	50V
C960	1-162-286-31	CERAMIC	220PF	10%	50V
C961	1-162-286-31	CERAMIC	220PF	10%	50V
C962	1-162-286-31	CERAMIC	220PF	10%	50V
C964	1-126-160-11	ELECT	1uF	20%	50V
C965	1-124-589-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
* CN901	1-568-865-11	SOCKET, CONNECTOR 23P			
		< DIODE >			
D901	8-719-921-48	DIODE MTZJ-5.6C			
D902	8-719-057-10	DIODE LNJ301MPUJAB (▶II (MD))			
D903	8-719-058-17	DIODE LNG401NPYJA (■ (MD))			
D904	8-719-057-09	DIODE LNJ801LPDJA (● REC)			
D906	8-719-057-10	DIODE LNJ301MPUJAB (▶II (CD))			
D907	8-719-058-17	DIODE LNG401NPYJA (■ (CD))			
D908	8-719-057-09	DIODE LNJ801LPDJA (CD INDICATOR)			
		< FLUORESCENT INDICATOR >			
FL901	1-517-687-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC901	8-759-297-23	IC M66004M8FP			
IC902	8-759-459-83	IC NJL55H400A			
		< TRANSISTOR >			
Q901	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q902	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q904	8-729-422-57	TRANSISTOR UN4111			
Q905	8-729-422-57	TRANSISTOR UN4111			
Q906	8-729-422-57	TRANSISTOR UN4111			
Q907	8-729-422-57	TRANSISTOR UN4111			
Q908	8-729-422-57	TRANSISTOR UN4111			
Q909	8-729-422-57	TRANSISTOR UN4111			
Q910	8-729-422-57	TRANSISTOR UN4111			
		< RESISTOR >			
R901	1-249-441-11	CARBON	100K	5%	1/4W
R902	1-249-441-11	CARBON	100K	5%	1/4W
R903	1-249-417-11	CARBON	1K	5%	1/4W F
R904	1-249-417-11	CARBON	1K	5%	1/4W F
R907	1-249-441-11	CARBON	100K	5%	1/4W
R908	1-249-435-11	CARBON	33K	5%	1/4W
R909	1-249-417-11	CARBON	1K	5%	1/4W F
R910	1-249-417-11	CARBON	1K	5%	1/4W F
R911	1-249-417-11	CARBON	1K	5%	1/4W F
R912	1-249-417-11	CARBON	1K	5%	1/4W F
R913	1-249-421-11	CARBON	2.2K	5%	1/4W F
R914	1-247-807-31	CARBON	100	5%	1/4W
R915	1-249-409-11	CARBON	220	5%	1/4W F
R916	1-247-807-31	CARBON	100	5%	1/4W
R917	1-247-807-31	CARBON	100	5%	1/4W
R918	1-249-409-11	CARBON	220	5%	1/4W F
R919	1-247-807-31	CARBON	100	5%	1/4W
R920	1-247-807-31	CARBON	100	5%	1/4W
R921	1-247-807-31	CARBON	100	5%	1/4W
R922	1-247-807-31	CARBON	100	5%	1/4W
R924	1-249-407-11	CARBON	150	5%	1/4W F
R925	1-249-407-11	CARBON	150	5%	1/4W F
R928	1-249-411-11	CARBON	330	5%	1/4W
R930	1-247-807-31	CARBON	100	5%	1/4W
R932	1-249-407-11	CARBON	150	5%	1/4W F
R933	1-249-407-11	CARBON	150	5%	1/4W F
R936	1-247-807-31	CARBON	100	5%	1/4W F
R938	1-249-393-11	CARBON	10	5%	1/4W F
R941	1-249-413-11	CARBON	470	5%	1/4W F
R942	1-249-415-11	CARBON	680	5%	1/4W F
R943	1-249-417-11	CARBON	1K	5%	1/4W F

PANEL POWER AMP

Ref. No.	Part No.	Description			Remark
R944	1-249-419-11	CARBON	1.5K	5%	1/4W F
R945	1-249-421-11	CARBON	2.2K	5%	1/4W F
R946	1-249-413-11	CARBON	470	5%	1/4W F
R947	1-249-415-11	CARBON	680	5%	1/4W F
R948	1-249-417-11	CARBON	1K	5%	1/4W F
R949	1-249-419-11	CARBON	1.5K	5%	1/4W F
R950	1-249-421-11	CARBON	2.2K	5%	1/4W F
R951	1-249-425-11	CARBON	4.7K	5%	1/4W F
R952	1-249-430-11	CARBON	12K	5%	1/4W
		< SWITCH >			
S901	1-473-392-11	ENCODER, ROTARY (VOLUME)			
S902	1-762-875-21	SWITCH, KEYBOARD (I/⏻)			
S903	1-762-875-21	SWITCH, KEYBOARD (■ (CD))			
S904	1-762-875-21	SWITCH, KEYBOARD (▶II (CD))			
S905	1-762-875-21	SWITCH, KEYBOARD (⏏ (CD))			
S906	1-762-875-21	SWITCH, KEYBOARD (■ (MD))			
S907	1-762-875-21	SWITCH, KEYBOARD (▶II (MD))			
S908	1-762-875-21	SWITCH, KEYBOARD (⏏ (MD))			
S909	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)			
S910	1-762-875-21	SWITCH, KEYBOARD (MD/CD ▶▶ ▶▶I/TUNING +)			
S911	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)			
S912	1-762-875-21	SWITCH, KEYBOARD (MD/CD I◀◀ ◀◀/TUNING -)			
S913	1-762-875-21	SWITCH, KEYBOARD (● REC)			
S914	1-762-875-21	SWITCH, KEYBOARD (CD-MD SYNC)			
S915	1-762-875-21	SWITCH, KEYBOARD (REPEAT/STEREO/MONO)			
S916	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE/TUNING MODE)			

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Ref. No.	Part No.	Description			Remark
*	A-4417-126-A	POWER AMP BOARD, COMPLETE (AEP,UK,EE) *************************			
*	A-4417-130-A	POWER AMP BOARD, COMPLETE ************************* (MY,SP,JE,HK,AR,AUS)			
*	A-4417-134-A	POWER AMP BOARD, COMPLETE (US,CND) *************************			
		< CAPACITOR >			
C1201	1-126-963-11	ELECT	4.7uF	20%	50V
C1202	1-162-288-31	CERAMIC	330PF	10%	50V
C1203	1-162-286-31	CERAMIC	220PF	10%	50V
C1204	1-126-967-11	ELECT	47uF	20%	50V
C1205	1-126-967-11	ELECT	47uF	20%	50V
C1206	1-126-948-11	ELECT	100uF	20%	35V
C1207	1-136-165-00	FILM	0.1uF	5%	50V
C1208	1-126-965-11	ELECT	22uF	20%	50V
C1210	1-136-163-00	FILM	0.068uF	5%	50V
C1211	1-136-163-00	FILM	0.068uF	5%	50V
C1220	1-126-924-11	ELECT	330uF	20%	10V
C1251	1-126-963-11	ELECT	4.7uF	20%	50V
C1252	1-162-288-31	CERAMIC	330PF	10%	50V
C1253	1-162-286-31	CERAMIC	220PF	10%	50V
C1254	1-126-967-11	ELECT	47uF	20%	50V
C1255	1-126-967-11	ELECT	47uF	20%	50V
C1256	1-126-948-11	ELECT	100uF	20%	35V
C1257	1-136-165-00	FILM	0.1uF	5%	50V
C1260	1-136-163-00	FILM	0.068uF	5%	50V
C1261	1-136-163-00	FILM	0.068uF	5%	50V
C1301	1-126-042-11	ELECT	3300uF	20%	35V
C1302	1-126-042-11	ELECT	3300uF	20%	35V
C1303	1-136-165-00	FILM	0.1uF	5%	50V
C1304	1-136-165-00	FILM	0.1uF	5%	50V
		< CONNECTOR >			
* CN1202	1-565-485-11	CONNECTOR, BOARD TO BOARD 9P			
		< DIODE >			
D1201	8-719-911-19	DIODE 1SS119-25			
D1202	8-719-911-19	DIODE 1SS119-25			
D1203	8-719-911-19	DIODE 1SS119-25			
D1213	8-719-911-19	DIODE 1SS119-25			
D1251	8-719-911-19	DIODE 1SS119-25			
D1263	8-719-911-19	DIODE 1SS119-25			
D1300	8-719-025-03	DIODE RBA-402-SL			
		< IC >			
IC1201	8-749-920-13	IC STK4132MK2			
		< TRANSISTOR >			
Q1201	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q1202	8-729-900-80	TRANSISTOR DTC114ES			
Q1231	8-729-422-73	TRANSISTOR UN4212			
Q1232	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q1251	8-729-620-05	TRANSISTOR 2SC2603-EF			
		< RESISTOR >			
R1201	1-249-417-11	CARBON	1K	5%	1/4W F
R1202	1-249-437-11	CARBON	47K	5%	1/4W
R1203	1-249-417-11	CARBON	1K	5%	1/4W F
R1204	1-249-437-11	CARBON	47K	5%	1/4W
R1205	1-260-103-11	CARBON	2.2K	5%	1/2W
R1207	1-260-103-11	CARBON	2.2K	5%	1/2W
⚠R1209	1-212-881-11	FUSIBLE	100	5%	1/4W F
⚠R1210	1-217-151-00	METAL	0.22	10%	2W
R1211	1-249-417-11	CARBON	1K	5%	1/4W F
R1212	1-249-431-11	CARBON	15K	5%	1/4W
R1214	1-260-099-11	CARBON	1K	5%	1/2W
R1217	1-260-099-11	CARBON	1K	5%	1/2W
R1218	1-249-397-11	CARBON	22	5%	1/4W F
R1219	1-249-397-11	CARBON	22	5%	1/4W F
R1225	1-249-397-11	CARBON	22	5%	1/4W F
R1226	1-249-429-11	CARBON	10K	5%	1/4W
R1227	1-247-854-11	CARBON	9.1K	5%	1/4W (AEP,UK,EE,MY,SP,JE,HK,AR,AUS)
R1227	1-249-429-11	CARBON	10K	5%	1/4W (US,CND)
R1228	1-247-880-11	CARBON	110K	5%	1/4W (AEP,UK,EE)
R1228	1-249-441-11	CARBON	100K	5%	1/4W (US,CND,MY,SP,JE,HK,AR,AUS)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark	
R1229	1-249-429-11	CARBON	10K	5%	1/4W	
R1231	1-247-807-31	CARBON	100	5%	1/4W	
R1232	1-249-429-11	CARBON	10K	5%	1/4W	
R1233	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R1243	1-217-637-00	FUSIBLE	1	5%	1/4W	F
R1251	1-249-417-11	CARBON	1K	5%	1/4W	F
R1252	1-249-437-11	CARBON	47K	5%	1/4W	
R1253	1-249-417-11	CARBON	1K	5%	1/4W	F
R1254	1-249-437-11	CARBON	47K	5%	1/4W	
R1255	1-260-103-11	CARBON	2.2K	5%	1/2W	
R1257	1-260-103-11	CARBON	2.2K	5%	1/2W	
⚠R1259	1-212-881-11	FUSIBLE	100	5%	1/4W	F
⚠R1260	1-217-151-00	METAL	0.22	10%	2W	
R1261	1-249-417-11	CARBON	1K	5%	1/4W	F
R1262	1-249-431-11	CARBON	15K	5%	1/4W	
R1268	1-249-397-11	CARBON	22	5%	1/4W	F
R1269	1-249-397-11	CARBON	22	5%	1/4W	F
R1271	1-249-431-11	CARBON	15K	5%	1/4W	
R1272	1-249-431-11	CARBON	15K	5%	1/4W	
R1273	1-249-413-11	CARBON	470	5%	1/4W	F
		< THERMISTOR(POSITIVE) >				
THP1230	1-807-796-11	THERMISTOR				

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Ref. No.	Part No.	Description
*	1-666-905-11	ST TERMINAL BOARD *****************
		< CONNECTOR >
CN744	1-568-834-11	SOCKET, CONNECTOR 15P
CN745	1-774-289-11	PIN, CONNECTOR (PC BOARD) 15P

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Ref. No.	Part No.	Description
*	1-667-719-11	SW BOARD ********
		< CONNECTOR >
CN601	1-770-697-11	CONNECTOR, FFC/FPC 14P
CN602	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P
CN603	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P
		< SWITCH >
S681	1-572-467-61	SWITCH, PUSH (1 KEY)(LIMIT IN)
S682	1-692-377-31	SWITCH, PUSH (1 KEY)(REFLECT)
S683	1-692-847-21	SWITCH, PUSH (1 KEY)(PROTECT)
S685	1-572-467-61	SWITCH, PUSH (1 KEY)(CHUCKING IN)
S686	1-762-621-21	SWITCH, PUSH (1 KEY)(PACK OUT)
S687	1-572-688-11	SWITCH, PUSH (1 KEY)(PB POSITION)
S688	1-762-621-21	SWITCH, PUSH (1 KEY)(REC POSITION)

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Ref. No.	Part No.	Description	Remark
*	1-666-904-11	TRANS BOARD ***********	
		< CONNECTOR >	
CN1600	1-564-321-00	PIN, CONNECTOR 2P	
* CN1601	1-564-518-11	PLUG, CONNECTOR 3P	
CN1602	1-564-523-11	PLUG, CONNECTOR 8P	
		< FUSE >	
⚠F1601	1-532-388-31	FUSE (T2AL/250V)(MY,SP,JE,HK,AR,AUS)	
⚠F1603	1-532-504-31	FUSE (T4AL/250V)	(AEP,UK,EE,MY,SP,JE,HK,AR,AUS)
⚠F1603	1-533-419-11	FUSE, GLASS CYLINDRICAL (DIA.5)(4A/125V)	(US,CND)
⚠F1605	1-532-504-31	FUSE (T4AL/250V)	(AEP,UK,EE,MY,SP,JE,HK,AR,AUS)
⚠F1605	1-533-419-11	FUSE, GLASS CYLINDRICAL (DIA.5)(4A/125V)	(US,CND)
		< FUSE HOLDER >	
FH1601	1-533-293-11	FUSE HOLDER (MY,SP,JE,HK,AR,AUS)	
FH1602	1-533-293-11	FUSE HOLDER (MY,SP,JE,HK,AR,AUS)	
FH1603	1-533-293-11	FUSE HOLDER	
FH1604	1-533-293-11	FUSE HOLDER	
FH1605	1-533-293-11	FUSE HOLDER	
FH1606	1-533-293-11	FUSE HOLDER	
		< RESISTOR >	
⚠R1600	1-202-725-00	SOLID 3.3M 10% 1/2W	(US,CND)
		< SWITCH >	
⚠S1600	1-762-753-11	SWITCH, VOLTAGE SELECTION	(MY,SP,JE,HK,AR,AUS)
		< TRANSFORMER >	
⚠T1600	1-431-498-11	TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS)	
⚠T1600	1-431-988-11	TRANSFORMER, POWER (AEP,UK,EE)	
⚠T1600	1-431-989-11	TRANSFORMER, POWER (US,CND)	
		< THERMISTOR(POSITIVE) >	
THP1600	1-801-696-11	THERMISTOR, POSITIVE	
THP1601	1-801-696-11	THERMISTOR, POSITIVE	
THP1602	1-801-671-11	THERMISTOR, POSITIVE	
THP1603	1-801-671-11	THERMISTOR, POSITIVE	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
10	1-782-793-11	WIRE (FLAT TYPE) (23 CORE)	
52	1-782-990-11	WIRE (FLAT TYPE) (19 CORE)	
56	1-782-991-11	WIRE (FLAT TYPE) (15 CORE)	
62	1-233-544-21	ENCAPSULATED COMPONENT (US,CND)	
62	1-233-546-21	ENCAPSULATED COMPONENT	(MY,SP,JE,HK,AR,AUS)
62	1-693-387-21	TUNER (FM/MW/LW)(AEP,UK,EE)	
64	1-783-213-11	WIRE (FLAT TYPE) (15 CORE)	
⚠68	1-569-008-21	ADAPTOR, CONVERSION 2P (MY,SP,JE)	
⚠69	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK,EE,HK)	
102	1-660-966-11	OP RELAY FLEXIBLE BOARD	
103	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)	
110	1-783-113-11	WIRE (FLAT TYPE) (25 CORE)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N (for MD)	
⚠255	8-848-379-31	OPTICAL PICK-UP KSS-213B/K-N (for CD)	
256	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
⚠CNP1601	1-696-847-11	CORD, POWER (AUS)	
⚠CNP1601	1-769-744-11	CORD, POWER (AEP,UK,EE,MY,SP,JE,HK)	
⚠CNP1601	1-783-532-11	CORD, POWER (US,CND)	
⚠CNP1601	1-783-941-11	CORD, POWER (AR)	
FAN901	1-698-997-11	FAN, D.C.	
FL901	1-517-687-11	INDICATOR TUBE, FLUORESCENT	
HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)	
M101	X-4917-523-4	BASE (OUTSART) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
M902	A-4672-133-A	MOTOR ASSY, SLED	
M903	A-4672-134-A	MOTOR ASSY, LOADING (MD)	
M904	A-4608-362-A	MOTOR (L) ASSY (LOADING) (CD)	
⚠T1600	1-431-498-11	TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS)	
⚠T1600	1-431-988-11	TRANSFORMER, POWER (AEP,UK,EE)	
⚠T1600	1-431-989-11	TRANSFORMER, POWER (US,CND)	

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HARDWARE LIST

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#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
#3	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3
#4	7-685-871-01	SCREW +BVTT 3X6 (S)
#5	7-685-850-04	SCREW +BVTT 2X3 (S)
#6	7-685-851-04	SCREW +BVTT 2X4 (S)
#7	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3
#8	7-627-552-27	SCREW,PRECISION +P 1.7X2
#9	7-624-105-04	STOP RING 2.3, TYPE -E
#10	7-685-234-19	SCREW +KTP 2.6X8 TYPE2NON-SLIT
#11	7-621-775-10	SCREW +B 2.6X4
#12	7-621-255-15	SCREW +P 2X3
#13	7-627-852-28	+P 1.7X3

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

HCD-MD333

SONY®

SERVICE MANUAL

1999 . 11

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject: PARTS CHANGED

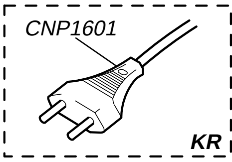
9-922-935-81

Sony Corporation
Home Audio Division Company

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PARTS CHANGED

☛ : indicates changed portion

Page	Former Ref. No.	Former Part No.	Former Description	Former Remark	New Ref. No.	New Part No.	New Description	New Remark
97			EXPLODED VIEWS				EXPLODED VIEWS	
			8-2. CHASSIS SECTION				**8-2. CHASSIS SECTION**	
	* 55	A-4417-130-A	POWER AMP BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS)	* 55	A-4417-130-A	POWER AMP BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS,KR)
	* 57	A-4414-823-A	JACK BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS)	* 57	A-4414-823-A	JACK BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS,KR)
	* 59	4-414-849-61	PANEL, BACK (MY,SP,JE,HK,AR,AUS)		* 59	4-414-849-61	PANEL, BACK (MY,SP,JE,HK,AR,AUS,KR)	
	62	1-233-546-21	ENCAPSULATED COMPONENT	(MY,SP,JE,HK,AR,AUS)	62	1-233-546-22	ENCAPSULATED COMPONENT	(MY,SP,JE,HK,AR,AUS,KR)
	* 65	A-4417-128-A	MAIN BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS)	* 65	A-4417-128-A	MAIN BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS,KR)
	* 67	A-4414-821-A	AUDIO BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS)	* 67	A-4414-821-A	AUDIO BOARD, COMPLETE	(MY,SP,JE,HK,AR,AUS,KR)
			————		⚠CNP1601	1-768-079-21	CORD, POWER (KR)	
								
102			ELECTRICAL PARTS LIST				ELECTRICAL PARTS LIST	
	*	A-4414-821-A	AUDIO BOARD, COMPLETE **********************	(MY,SP,JE,HK,AR,AUS)	*	A-4414-821-A	AUDIO BOARD, COMPLETE **********************	(MY,SP,JE,HK,AR,AUS,KR)
107	*	A-4414-823-A	JACK BOARD, COMPLETE *********************	(MY,SP,JE,HK,AR,AUS)	*	A-4414-823-A	JACK BOARD, COMPLETE *********************	(MY,SP,JE,HK,AR,AUS,KR)
108			< RESISTOR >				< RESISTOR >	
	⚠R444	1-215-914-11	METAK OXIDE 330 5% 3W F	(US,CND,MY,SP,JE,HK,AR,AUS)	⚠R444	1-215-914-11	METAK OXIDE 330 5% 3W F	(US,CND,MY,SP,JE,HK,AR,AUS,KR)
	*	A-4417-128-A	MAIN BOARD, COMPLETE *********************	(MY,SP,JE,HK,AR,AUS)	*	A-4417-128-A	MAIN BOARD, COMPLETE *********************	(MY,SP,JE,HK,AR,AUS,KR)

Page	Former Ref. No.	Former Part No.	Former Description	Former Remark	New Ref. No.	New Part No.	New Description	New Remark
112			ELECTRICAL PARTS LIST				ELECTRICAL PARTS LIST	
	*	A-4417-130-A	POWER AMP BOARD, COMPLETE *****************************	(MY,SP,JE,HK,AR,AUS)	*	A-4417-130-A	POWER AMP BOARD, COMPLETE *****************************	(MY,SP,JE,HK,AR,AUS.KR)
			< RESISTOR >				< RESISTOR >	
	R1227	1-247-854-11	CARBON 9.1K 5% 1/4W	(AEP,UK,EE,MY,SP,JE,HK,AR,AUS)	R1227	1-247-854-11	CARBON 9.1K 5% 1/4W	(AEP,UK,EE,MY,SP,JE,HK,AR,AUS,KR)
	R1228	1-249-441-11	CARBON 100K 5% 1/4W	(US,AND,MY,SP,JE,HK,AR,AUS)	R1228	1-249-441-11	CARBON 100K 5% 1/4W	(US,AND,MY,SP,JE,HK,AR,AUS,KR)
113		1-666-904-11	TRANS BOARD ************			1-666-904-11	TRANS BOARD ************	
			< FUSE >				< FUSE >	
	⚠F1601	1-532-388-31	FUSE (T2AL/250V)	(MY,SP,JE,HK,AR,AUS)	⚠F1601	1-532-388-31	FUSE (T2AL/250V)	(MY,SP,JE,HK,AR,AUS,KR)
	⚠F1603	1-532-504-31	FUSE (T4AL/250V)	(MY,SP,JE,HK,AR,AUS)	⚠F1603	1-532-504-31	FUSE (T4AL/250V)	(MY,SP,JE,HK,AR,AUS,KR)
	⚠F1605	1-532-504-31	FUSE (T4AL/250V)	(MY,SP,JE,HK,AR,AUS)	⚠F1605	1-532-504-31	FUSE (T4AL/250V)	(MY,SP,JE,HK,AR,AUS,KR)
			< FUSE HOLDER >				< FUSE HOLDER >	
	FH1601	1-533-293-11	FUSE HOLDER	(MY,SP,JE,HK,AR,AUS)	FH1601	1-533-293-11	FUSE HOLDER	(MY,SP,JE,HK,AR,AUS,KR)
	FH1601	1-533-293-11	FUSE HOLDER	(MY,SP,JE,HK,AR,AUS)	FH1601	1-533-293-11	FUSE HOLDER	(MY,SP,JE,HK,AR,AUS,KR)
			< SWITCH >				< SWITCH >	
	⚠S1600	1-762-753-11	SWITCH, VO;TAGE SELECTION	(MY,SP,JE,HK,AR,AUS)	⚠S1600	1-762-753-11	SWITCH, VO;TAGE SELECTION	(MY,SP,JE,HK,AR,AUS,KR)
			< TRANSFORMER >				< TRANSFORMER >	
	⚠T1600	1-431-498-11	TRANSFORMER, POWER	(MY,SP,JE,HK,AR,AUS)	⚠T1600	1-431-498-11	TRANSFORMER, POWER	(MY,SP,JE,HK,AR,AUS,KR)

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.1	2001.06	Correction of exploded views. (SPM-01012)
 1.0	1999.11 1998.08	SUPPLEMENT-1 New